SPSS I

Getting Started with SPSS

2026-03-04

After attending this training session, you will be able to:

1. Open SPSS software and open an existing data set
2. Understand the layout of data in data view and in variable view
3. Obtain descriptive statistics and frequency tables
4. Transform a variable using recode, compute, and visual binning
5. Create and edit graphs
6. Print, save, and export output

SPSS I: Getting Started with SPSS

Introduction

Code and Dataset

For this training session, please download the following data:

SPSS Workshop.sav

What is SPSS?

SPSS is a statistics program that is intuitive and easy to use. Originally, SPSS was an acronym for "Statistical Package for the Social Sciences," but now the name just stands on its own. You can do most of your work simply by pointing and clicking with the mouse. There is also an option to work using syntax. The program offers help for most of the tasks you might want to perform. SPSS allows you to do three basic things:

- Store and organize data
- Manipulate data
- Analyze data using statistical procedures

Starting SPSS

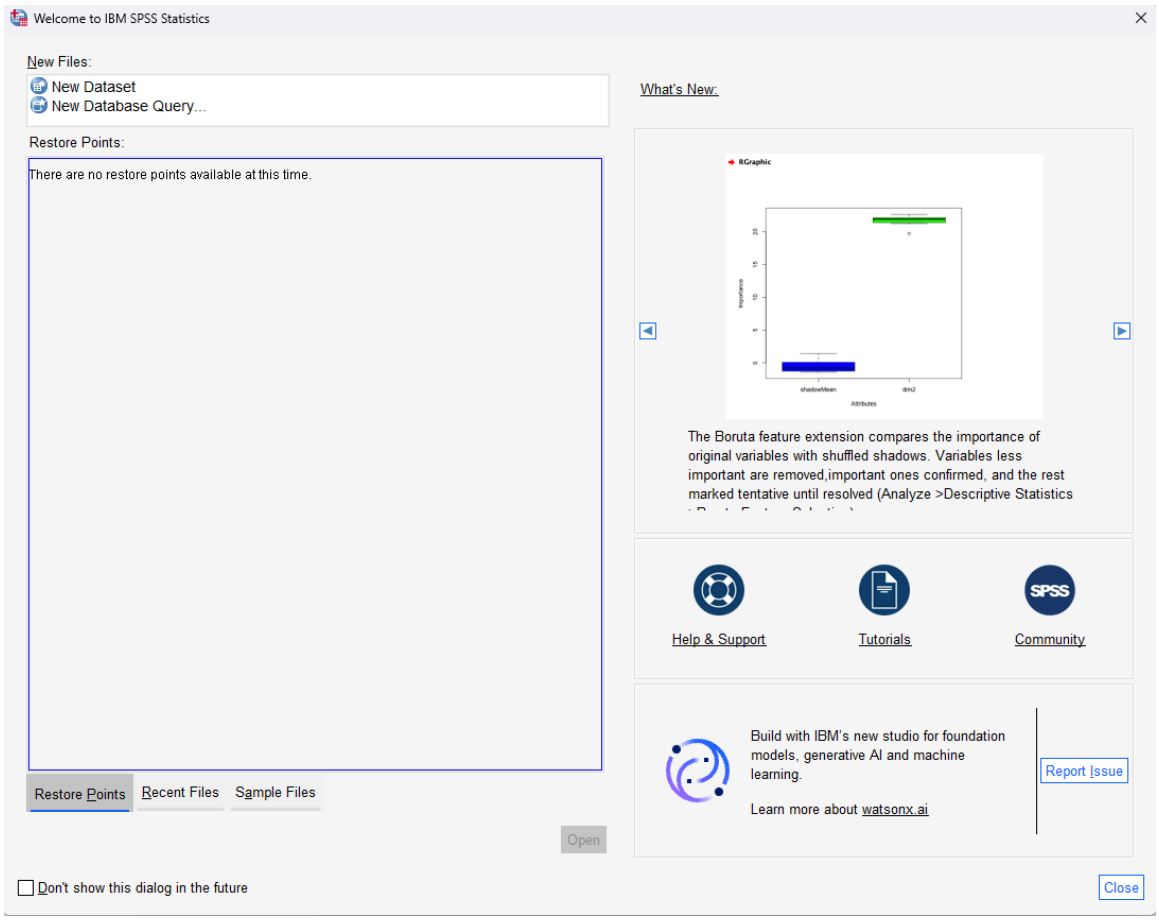
> **Note**
>
> You can open SPSS before loading a dataset, as explained below, or you can open SPSS by double-clicking an SPSS file.

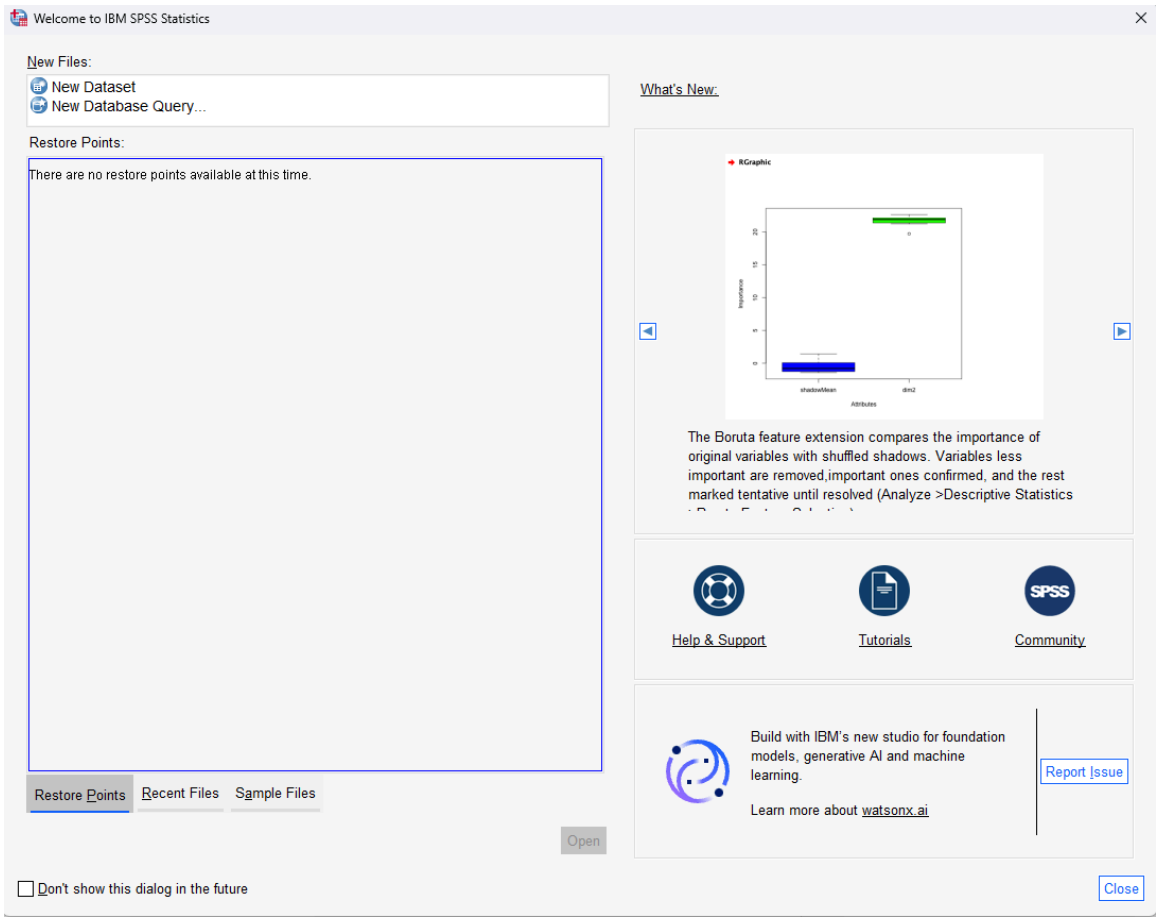
To launch SPSS, click on the **Start button** in the lower left-hand corner of the screen and start typing **SPSS**. Select **IBM SPSS Statistics**.

> **Note**
>
> You can open SPSS before loading a dataset, as explained below, or you can open SPSS by double-clicking an SPSS file.

To launch SPSS, click on the **Start button** in the lower left-hand corner of the screen and start typing **SPSS**. Select **IBM SPSS Statistics**.

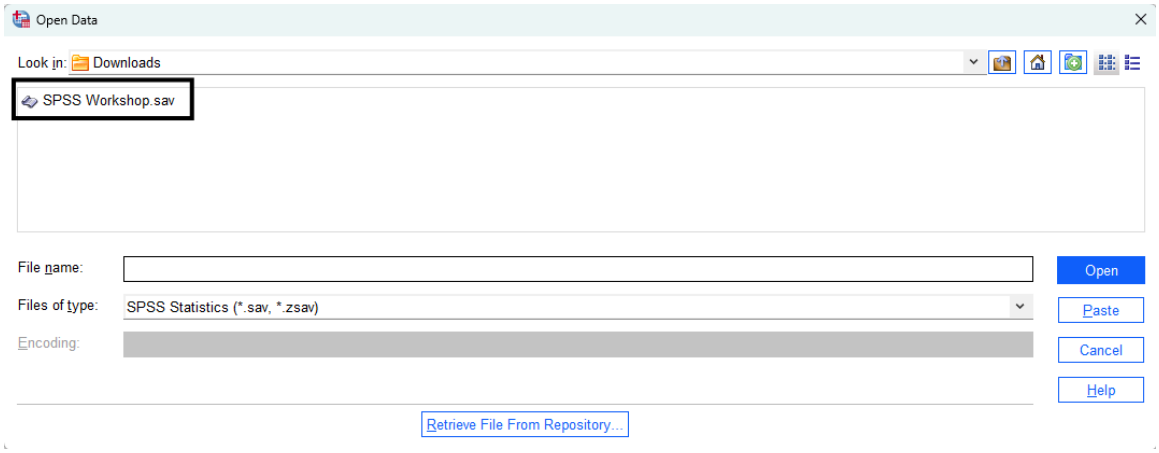
Once the program launches, you will see the following dialog box:





Loading Data

1. In the opening SPSS window, double-click **New Dataset** to open an empty dataset.
2. In the **File** menu in the top-left corner of the window, click **Open** > **Data**.
3. Select the location where the data file is stored. Click the name of the data file, then click **Open**.
4. In the opening SPSS window, double-click **New Dataset** to open an empty dataset.
5. In the **File** menu in the top-left corner of the window, click **Open** > **Data**.
6. Select the location where the data file is stored. Click the name of the data file, then click **Open**.



If you are unable to locate your data file, the file is likely not in an SPSS format. SPSS data files usually end in the suffix **.sav**. By default, SPSS looks for an SPSS formated data set first, but SPSS is also able to read other types of formats. To view data in a different format, change **Files of type:** to **All files (*.*)**, and the file should appear. Double-click on the file, and SPSS will open it, if it is compatible with SPSS. If you are unable to locate your data file, the file is likely not in an SPSS format. SPSS data files usually end in the suffix **.sav**. By default, SPSS looks for an SPSS formated data set first, but SPSS is also able to read other types of formats. To view data in a different format, change **Files of type:** to **All files (*.*)**, and the file should appear. Double-click on the file, and SPSS will open it, if it is compatible with SPSS.

> ⚠ Warning
>
> Changing the extension of a file to .sav does not convert the data file into an SPSS formatted data file. It must be imported through SPSS or another program for SPSS to be able to read it.

Title Bar

SPSS has a **Title Bar** running across the top of each window. The Title Bar includes the title of the window you are in (Data Editor, Output Viewer, etc.) and the name of the file you are working with.

What is the General Social Survey (GSS)?

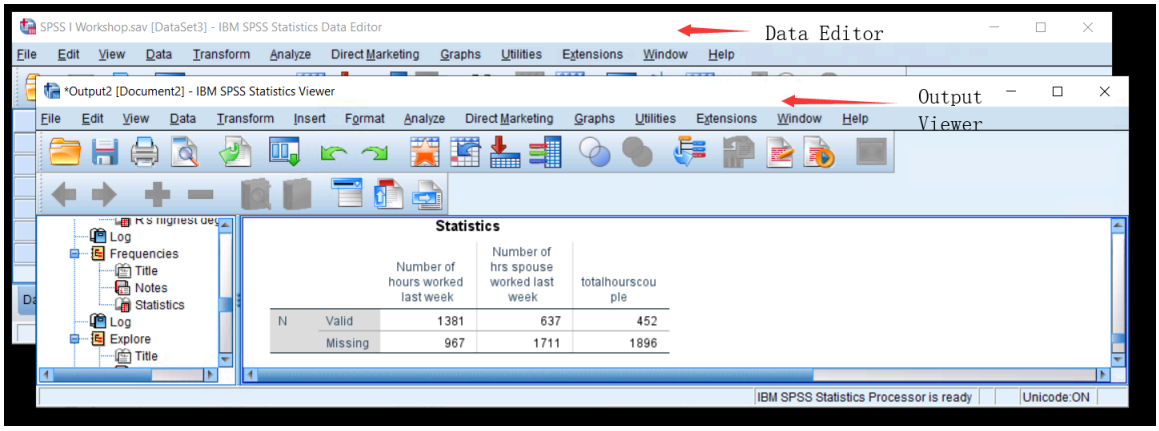
The GSS is a demographic and opinion survey of U.S. households conducted by the National Opinion Research Center (NORC) at the University of Chicago. It has been collected annually or biannually (depending on the availability of funding) since 1972.

More than 38,000 respondents have answered over 3,000 different questions with regard to their opinions and attitudes toward economic, social, and political issues. It is well known for having the highest quality in overall survey design and is often used for examples in introductory statistics textbooks.

A subset of the 2018 GSS is used in this tutorial.

The SPSS Environment

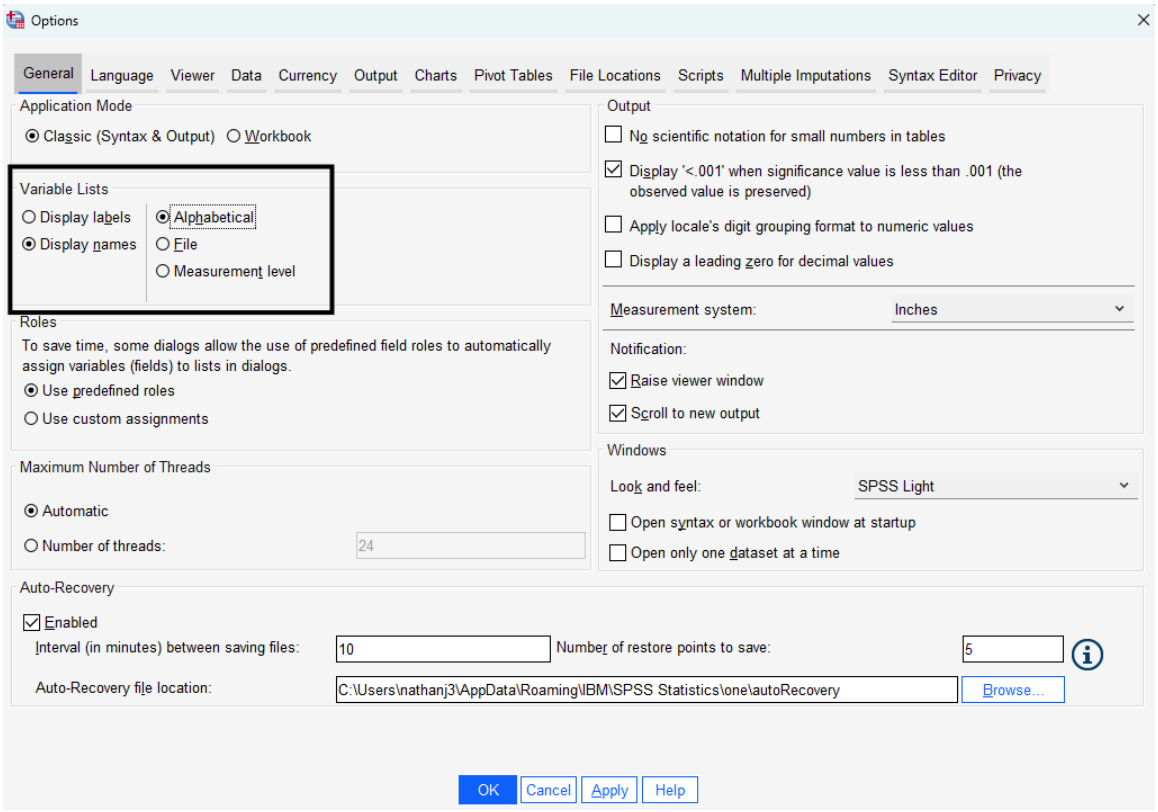
Like many other programs, SPSS uses a variety of windows to accomplish its functions. The two main windows are the **Data Editor** and the **Output Viewer**.



Options

Before you begin to explore the SPSS environment, there are some program options that should be specified. Changing these settings does not change the underlying data file in any way. The first option controls how the variables are displayed when you manipulate data or run analysis.

1. In the **Menu bar**, select **Edit** > **Options**.
2. In the **General** tab, under **Variable Lists**, select **Display Names** and **Alphabetical**. Click on **OK**.



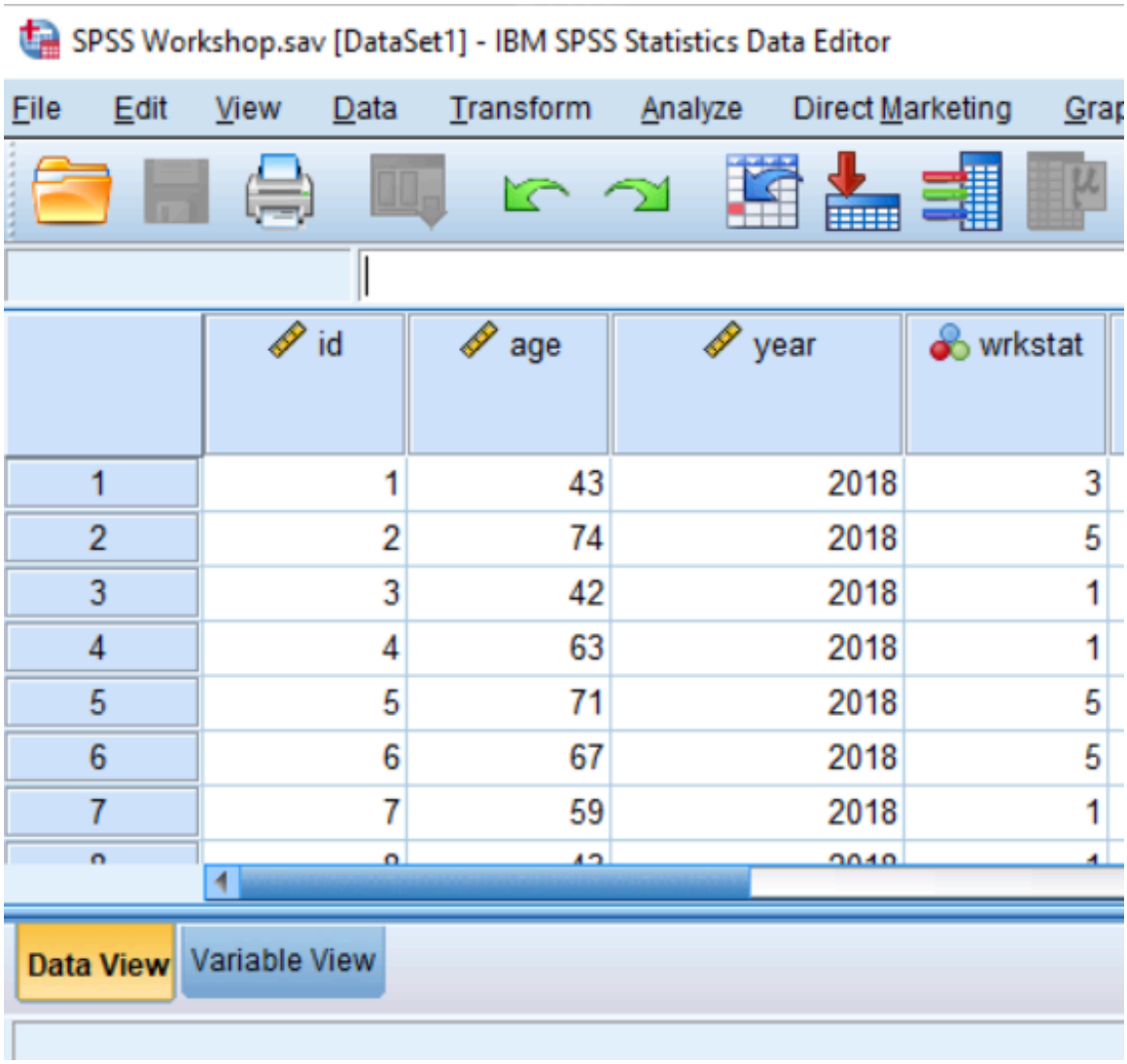
> **Note**
>
> Changing the variable lists to alphabetical will only change how the variables are listed in the dialog boxes. It will not change how they are listed in the data file.

Data Editor

When starting SPSS, the Data Editor is the first window to appear. In the Data Editor, there are two types of views: the **Data View** and the **Variable View**.

Data View

The **Data View** is a spreadsheet that displays data. The Data View is divided into many individual boxes (i.e., cells), and these cells are arranged into rows and columns. Each row is labeled with a number, and each column is labeled with a variable name. In an SPSS data file, each row displays a case. A case may be an individual person, a single country, or any other unit of analysis for which data has been collected. Each column contains a particular variable. Imagine, for example, that the data comes from a poll or survey. Each row represents an individual person who participated in that poll, and each column represents the answer to a question that was asked of that person. This row-by-column arrangement provides a very compact and efficient way to organize data.



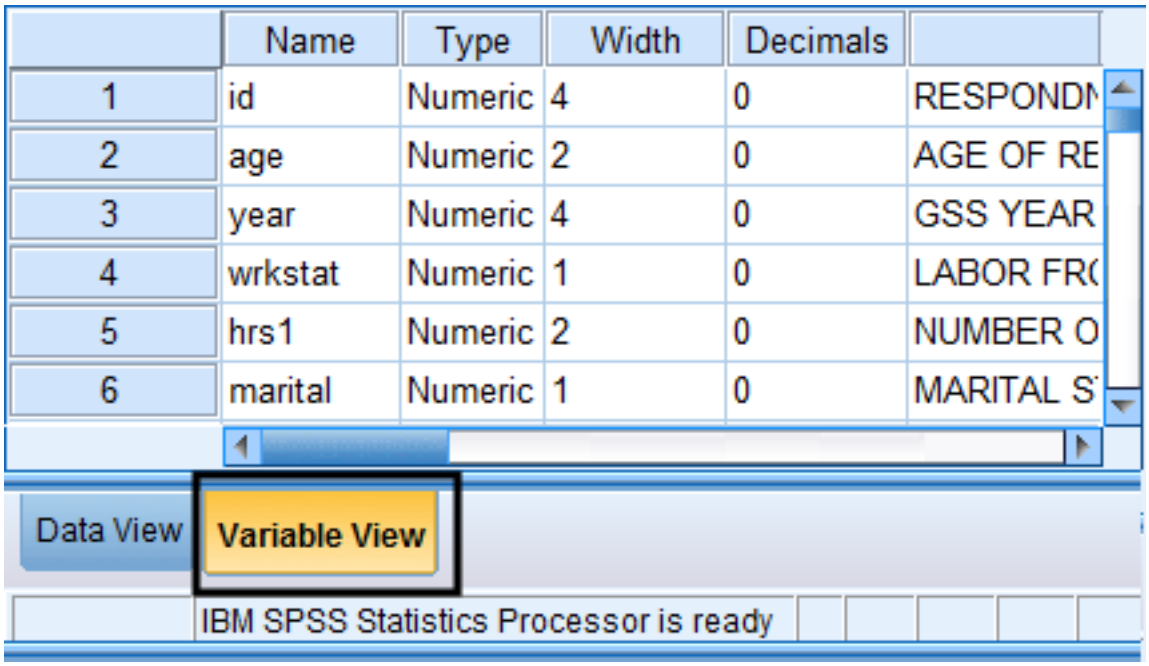
Each variable has both a variable name and variable label. In the **Data View**, the variable name is at the top of the column. In this example the variable names are id, age, year, and wrkstat. While case numbers are quite intuitive, variable names can be confusing if you are using a preexisting data set. For example, what is the variable *wrkstat*? To see the variable label, hover the mouse over the variable name, and the variable label will appear in light yellow. SPSS variable names can have a length of up to 64 characters, cannot contain spaces, and must start with a letter. In contrast, variable labels may be up to 255 characters long, may include spaces, and may begin with a number.

SPSS summarizes all of the variable information in Variable View.

Variable View

There are two ways to switch to the Variable View: double-click on any variable name at the top of a column in the Data View; or click on the Variable View tab in the lower left-hand corner of the screen.

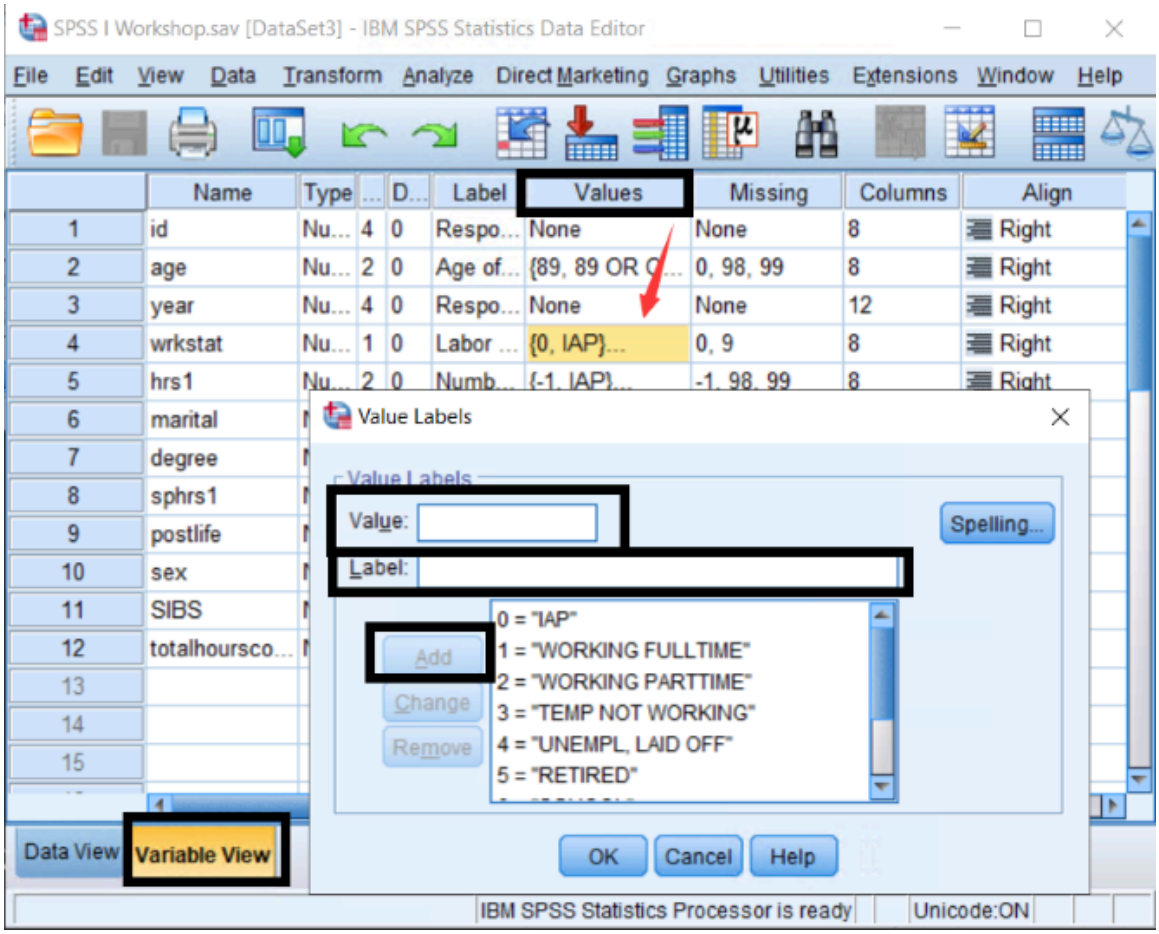
The **Variable View** displays variable attributes including formatting, labeling, and coding. Each row provides information about a variable and information is arranged so each row represents one of the variables in your data set. The column headings indicate what information can be found for your variables. Notice in this view both the variable name and the variable label are displayed.



One of the most important elements presented in the Variable View is value labels. Value labels allow users to utilize numeric coding for string variables.

To view or edit a variable's value labels:

1. Click on the cell in the column marked **Values**.
2. A small blue box will appear in the right side of the cell. Click on the blue box to open the **Value Labels** dialog box. For the variable *wrkstat*, a "1" indicates a respondent who works full-time. A "2" represents a part-time worker. Use this procedure any time you are confused about how a variable is coded.



3. Value labels can be altered or added in the **Value Labels** dialog box. When adding a label, specify the value and its label and click **Add**.

To change an existing label for a certain value, click on the value from the list, and edit the label. Once done, be sure to click **Change**. Otherwise, your changes will not be saved. Value labels may be removed by highlighting the value label and clicking **Remove**. To finish, click the **OK** button.

Dialog Boxes

Dialog boxes are the main way to interact with SPSS. The window that appeared when changing values labels is referred to as a dialog box. Choosing commands will usually open a dialog box. By default, dialog boxes present a number of options for each command to tailor or customize the output to your specifications.

The features of dialog boxes vary widely, but most of the dialog boxes that you will use share several important elements. Usually, they will allow you to select variables. Depending on the options specified for the appearance of variable lists, the variables in the dialog box will appear with the variable label first, followed by the variable name. However, if the options have been changed to "Display Names," the dialog box will list only variable names. Most dialog boxes have buttons that say **Continue** or **OK**. These buttons are used to run SPSS procedures when you

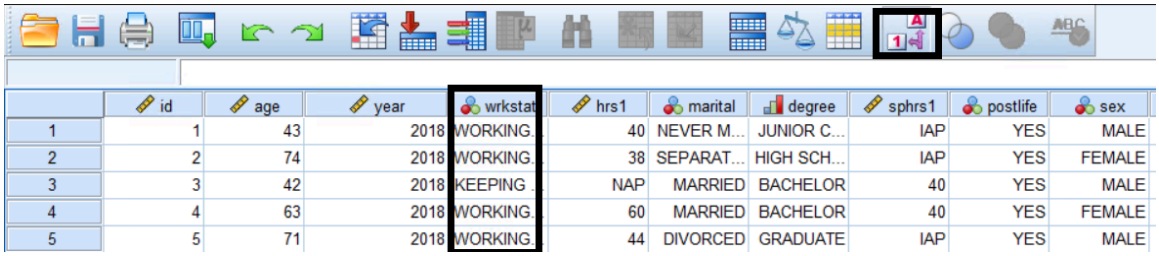
have finished selecting your options. The **Cancel** button closes the dialog box without running any procedures. The **Help** button provides specific, on-screen help from the SPSS program. The **Paste** button turns your current command and the options and variables you have selected into syntax and pastes it into a Syntax window.

Data View: Value Labels Shortcut

Toolbar

The **Toolbar** contains a row of buttons, and each button is labeled with a small picture, or icon. The **Toolbar** makes some of the more common commands available without having to navigate through the menus. To find out the function of a particular icon, let the mouse hover over it *without* clicking it. SPSS will display a small label indicating what function the button performs.

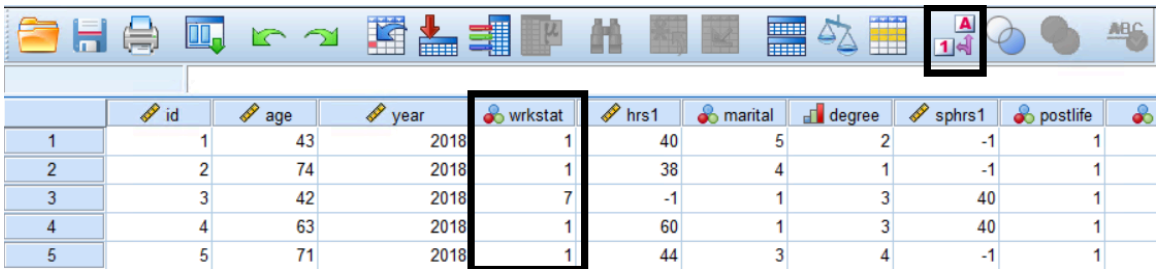
To view value labels in the **Data View**, click on the  **View Value Labels** icon in the **Toolbar**. When this option is selected, SPSS displays value labels instead of numeric values in the data spreadsheet. Before clicking this icon, the data editor presents only numerical values of each variable regardless of the level of measurement. To view value labels in the **Data View**, click on the  **View Value Labels** icon in the **Toolbar**. When this option is selected, SPSS displays value labels instead of numeric values in the data spreadsheet. Before clicking this icon, the data editor presents only numerical values of each variable regardless of the level of measurement.



	id	age	year	wrkstat	hrs1	marital	degree	sphrs1	postlife	sex
1	1	43	2018	WORKING.	40	NEVER M...	JUNIOR C...	IAP	YES	MALE
2	2	74	2018	WORKING.	38	SEPARAT...	HIGH SCH...	IAP	YES	FEMALE
3	3	42	2018	KEEPING .	NAP	MARRIED	BACHELOR	40	YES	MALE
4	4	63	2018	WORKING.	60	MARRIED	BACHELOR	40	YES	FEMALE
5	5	71	2018	WORKING.	44	DIVORCED	GRADUATE	IAP	YES	MALE

If the full label is not displayed because it does not fit in the designated cell width, this can be changed by grabbing the right side of a cell on the variable label with the mouse and stretching the column to the right (to widen) or left (to shorten).

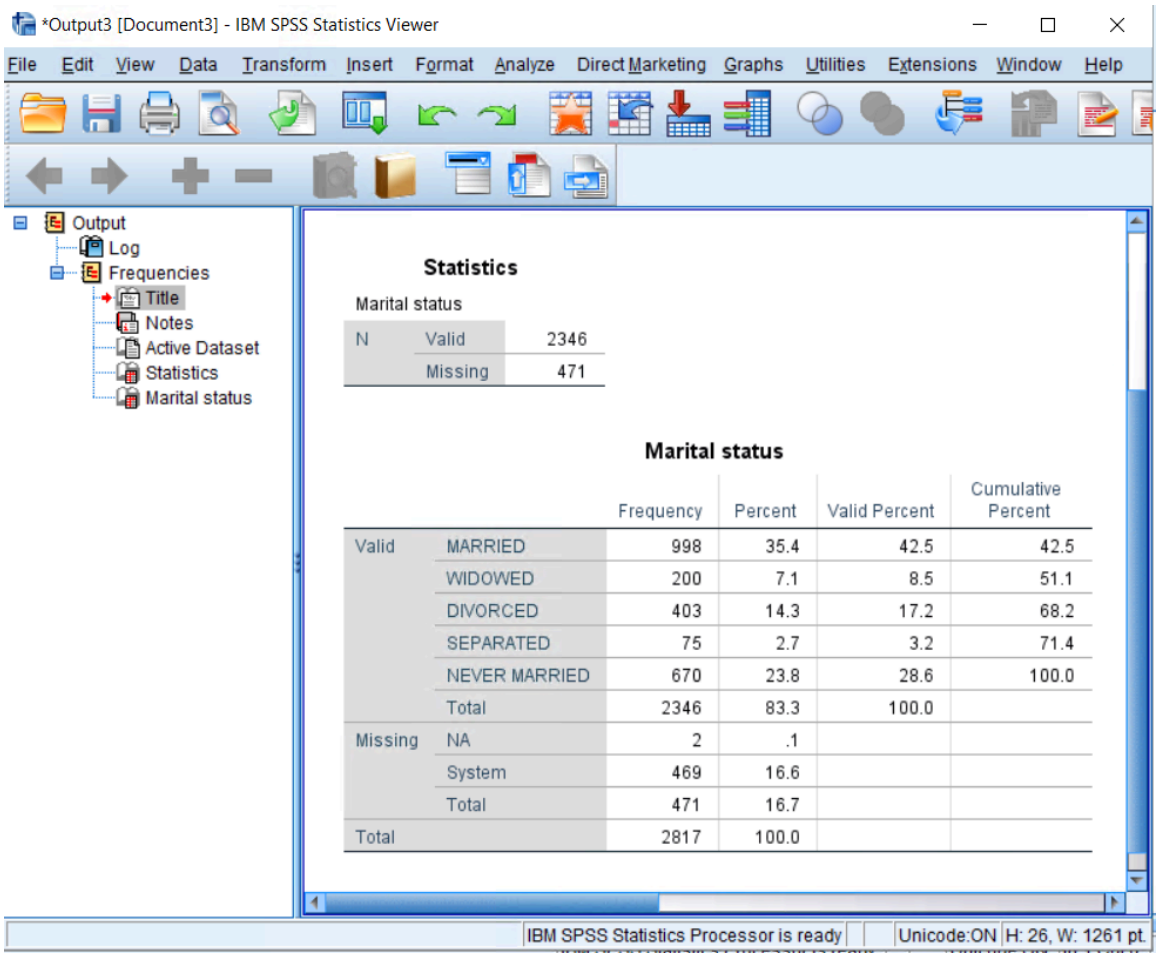
> **i** Note
>
> Switching to variable labels does not change how the underlying data is stored. The data will still be stored as numeric values; it only changes how it is displayed.



	id	age	year	wrkstat	hrs1	marital	degree	sphrs1	postlife
1	1	43	2018	1	40	5	2	-1	1
2	2	74	2018	1	38	4	1	-1	1
3	3	42	2018	7	-1	1	3	40	1
4	4	63	2018	1	60	1	3	40	1
5	5	71	2018	1	44	3	4	-1	1

The **View Value Labels** icon is a toggle button. To go back to displaying numeric data values, click the icon again to deactivate it.

Output Viewer



The **Output Viewer** displays the results of statistical procedures you have run in the current SPSS session. You will not normally see the **Output Viewer** window until you have run a statistical procedure. A more in-depth discussion of the Output window is located in the frequencies section.

Descriptive Statistics

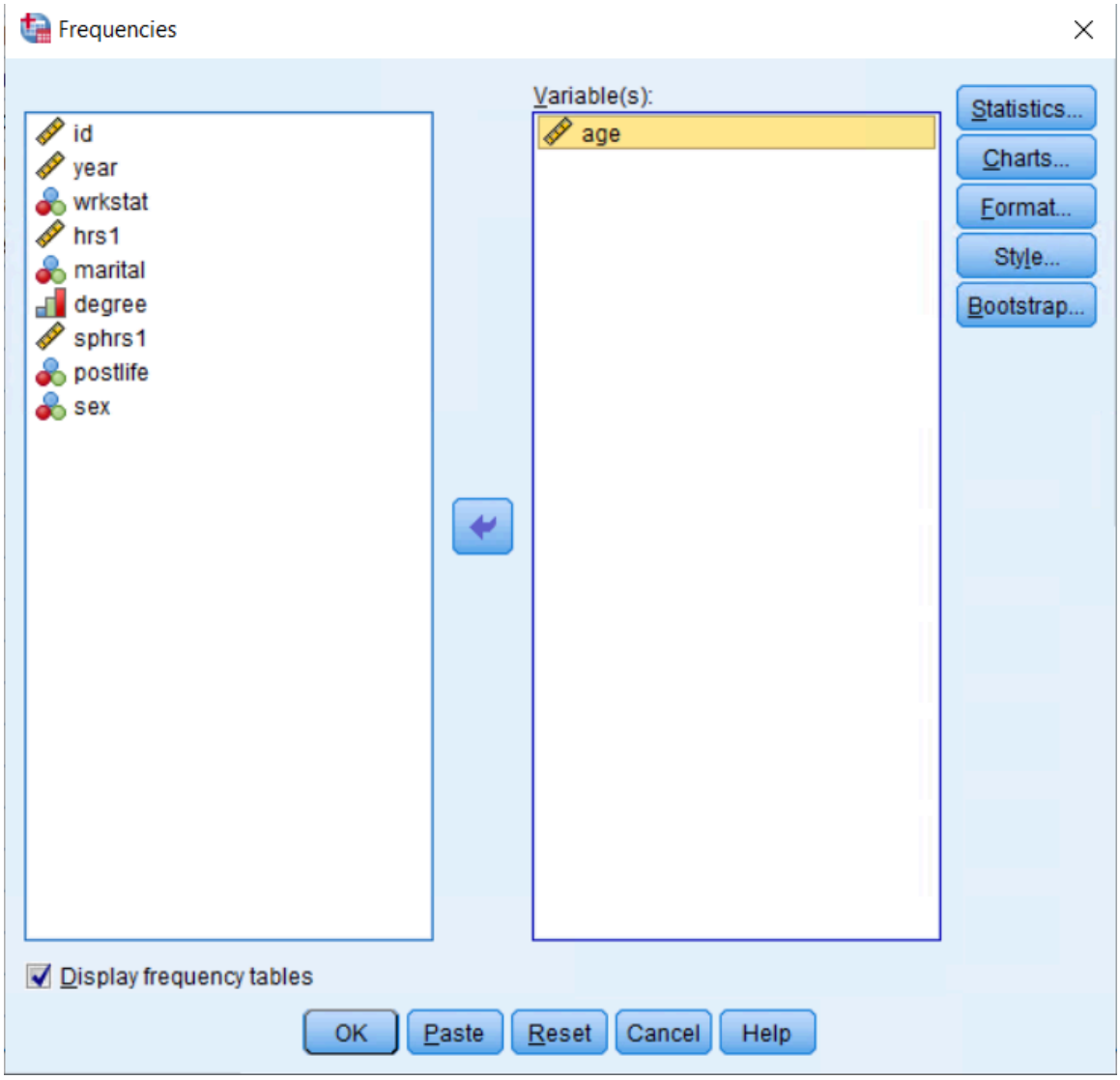
Directly below the Title bar is the **Menu bar**. This menu lists most of the commands available in SPSS. For the remainder of the workshop, this Menu bar is where most procedures are found.

Descriptives

The **Descriptives** procedure generates a descriptive table summarizing the distribution of a variable. For example, a descriptive table for *age* (Respondent's age in years) will show the amount, minimum value, maximum value, mean (average), and standard deviation of cases (respondents). The **Descriptives** procedure also allows you to select several descriptive statistics, including the sum, measures of dispersion (i.e., variance, range, standard error of the mean), and measures of the distribution (i.e., kurtosis, skewness).

To run a descriptive:

1. In the **Menu bar**, select **Analyze** > **Descriptive Statistics** > **Descriptives**.
2. In the **Descriptives** dialog box, move the variable, *age* in this case, from the left pane to the **Variable(s)** box by double-clicking it or using the arrow button. If you move the wrong variable, double-click it to move it back or use the arrow button.



To see the value labels of the variables when choosing variables from the list, right-click on the variable name and select **Variable Information**. This will display a **Variable Information** box, with a drop down menu listing the value labels.

3. To add optional descriptive measures, click on the **Options** button, and select the statistics that you want to include. To unselect a statistic, click the checkbox again and it will disappear. When done selecting statistics, click **Continue** to return to the **Descriptives** dialog box.

Output Window: Descriptives

After you run a procedure the Output Viewer will automatically appear. The **Output Viewer** window has two parts: the left displays an outline of the procedures you have run. The right side contains the actual output tables and charts, created by any procedures that have been run. Below is an example of the main output in the right hand side of the Output Viewer.

Descriptives

Descriptive Statistics

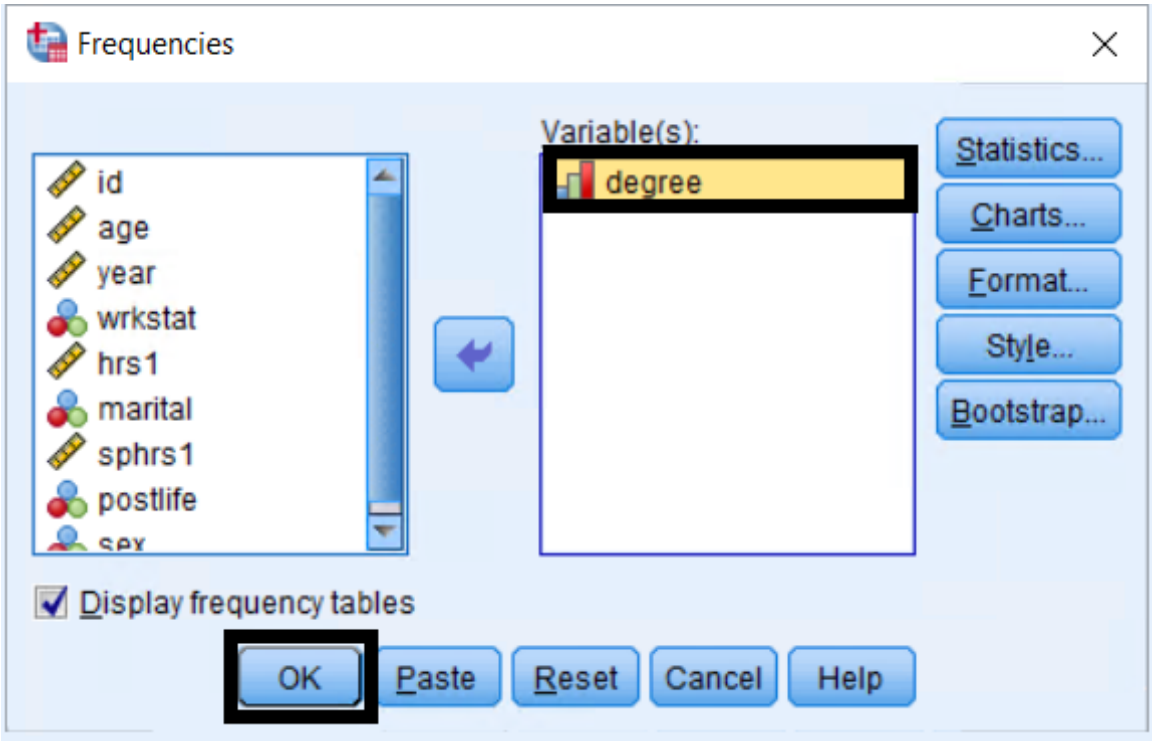
	N	Minimum	Maximum	Mean	Std. Deviation
Age of respondent	2341	18	89	48.97	18.061
Valid N (listwise)	2341				

Frequencies

The **Frequencies** procedure generates a frequency table illustrating how cases are distributed across the values of a variable. For example, a frequency table for *degree* (Respondent's highest degree) will show how many respondents have "less than high school", "high school", "junior college", "bachelor", or "graduate" levels of education. The **Frequencies** procedure also allows you to select several descriptive statistics, including percentile values, measures of central tendency (i.e., mean), measures of dispersion (i.e., standard deviation), and measures of the distribution (i.e., skewness).

To run a frequency:

1. In the **Menu bar**, select **Analyze** > **Descriptive Statistics** > **Frequencies**.
2. In the **Frequencies** dialog box, move the variable, *degree* in this case, from the left pane to the **Variable(s)** box by double-clicking it or using the arrow button. If you move the wrong variable, double-click it to move it back or use the arrow button.



To see the value labels of the variables when choosing variables from the list, right-click on the variable name and select **Variable Information**. This will display a **Variable Information** box, with a drop down menu listing the value labels.

3. To add descriptive statistics, click on the **Statistics** button, and select the statistics that you want to include. To unselect a statistic, click the checkbox again and it will disappear. When done selecting statistics, click **Continue** to return to the **Frequencies** dialog box.

4. To produce charts (bar, histogram, or pie charts), click on **Charts**, and select the charts that you want to include. When done selecting charts, click **Continue** to return to the **Frequencies** dialog box. Click **OK** to finish.

Output Window: Frequencies

After you run a procedure the Output Viewer will automatically appear again. Clicking on different sections of the outline, on the left hand side, makes it possible to navigate quickly through the output. To display a particular item in the outline of procedures in the output window, single-click on the item of interest.

You may want to change the labeling of the output so that both variable names and labels are displayed in output tables and graphs:

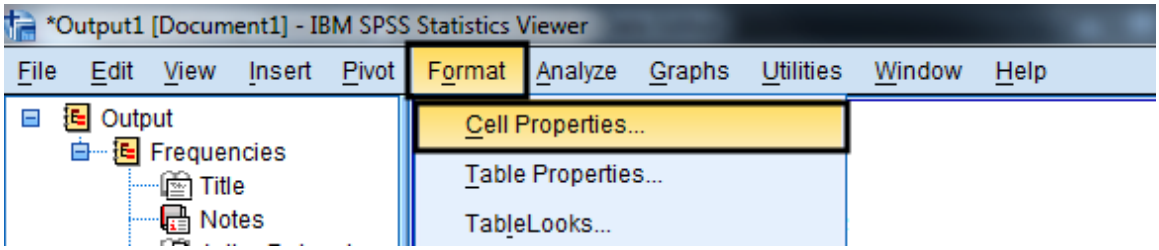
1. In the **Menu bar**, select **Edit > Options**.
2. In the **Output Labels** tab, under **Pivot Table Labeling**, select **Names and Labels** for each drop down box. Click on **OK** to activate these changes.
3. Rerun the frequency table procedure to see the change in the Output window.

To change the number of decimal places that appears in the output: 1. In the **Output Viewer**, double-click the pivot table you want to edit, and highlight the cells you want to format.

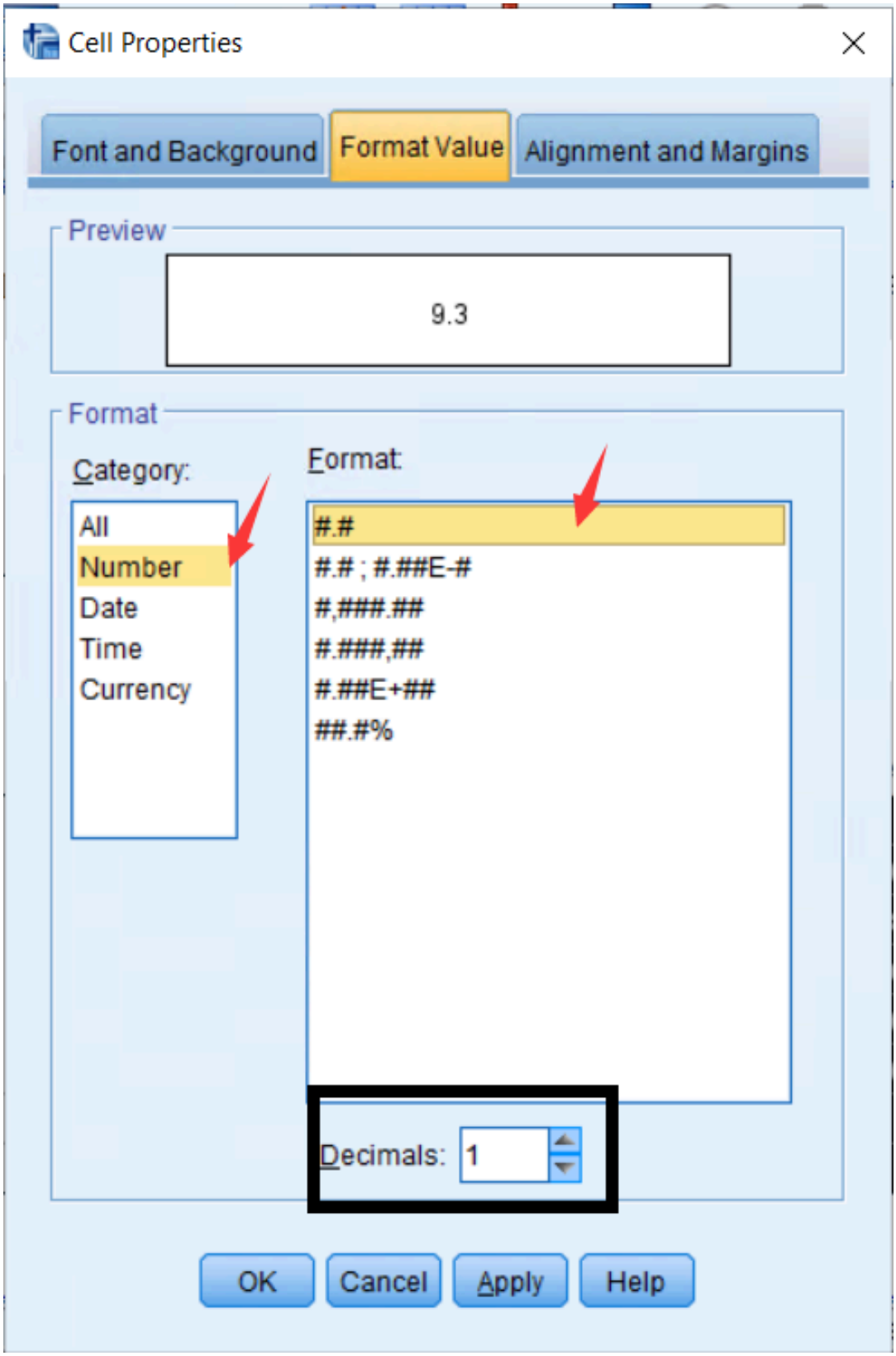
R's highest degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LT HIGH SCHOOL	262	11.2	11.2	11.2
	HIGH SCHOOL	1178	50.2	50.2	61.3
	JUNIOR COLLEGE	196	8.3	8.3	69.7
	BACHELOR	465	19.8	19.8	89.5
	GRADUATE	247	10.5	10.5	100.0
	Total	2348	100.0	100.0	

2. In the **Menu bar**, select **Format** > **Cell Properties**.



3. In the **Cell Properties** dialog box, select the **Format Value** tab, edit the number of decimal places, and click **OK**.


Cell Properties
Font and Background
Format Value
Alignment and Margins
Preview
9.3
Format
Category:
All
Number
Date
Time
Currency
Format:
#.#
#.# ; #.##E-#
#,###.##
#.###,##
#.##E+##
##.#%
Decimals:
1
OK
Cancel
Apply
Help

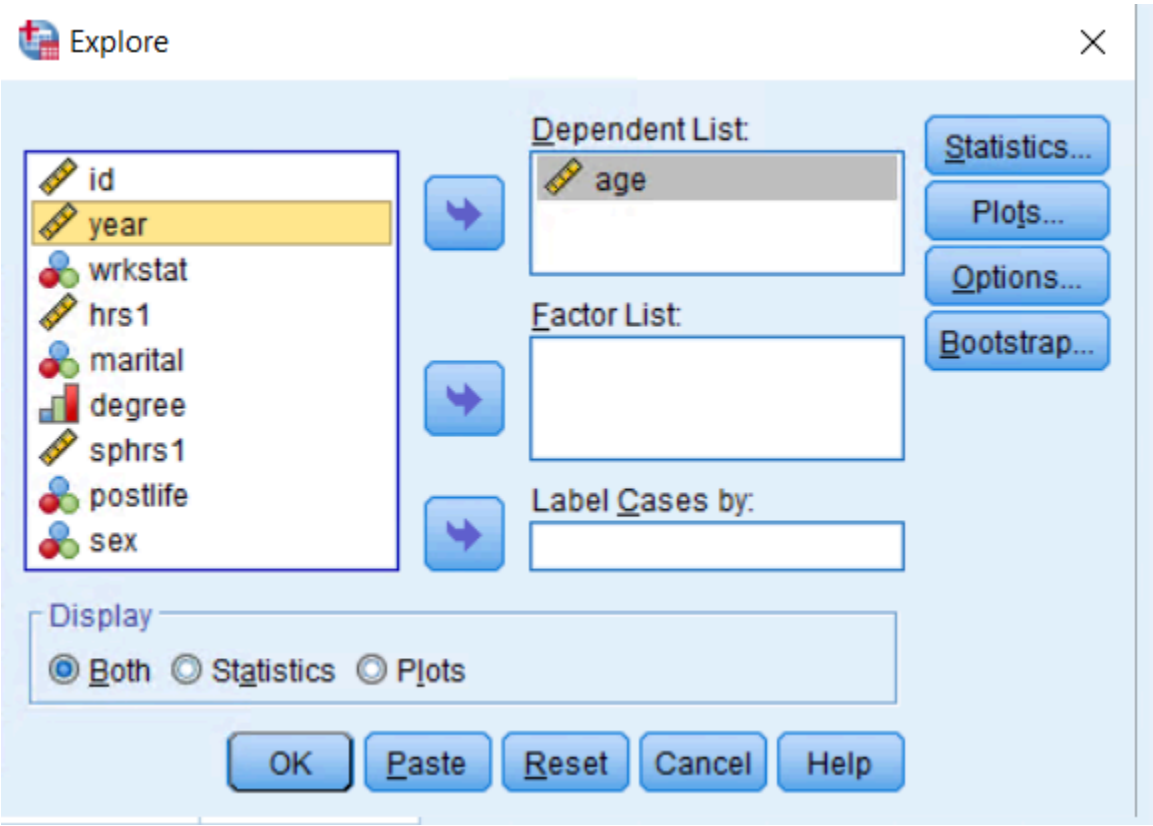
Explore

The **Frequencies** procedure generates output illustrating how cases are distributed across the values of a variable in more depth than {Descriptives} and {Frequencies}. For example, {Explore} for *age* (Respondent's age) will provide descriptive statistics, including percentile values, measures of central tendency (i.e., mean), measures of dispersion (i.e., standard deviation), and measures of the distribution (i.e., skewness). {Explore} will also provide stem-and-leaf-plots and boxplots for the selected variable.

An additional useful option of Explore is the ability to describe a continous variable at different levels of a categorical or ordinal (nominal) variable.

To run a frequency:

1. In the **Menu bar**, select **Analyze > Descriptive Statistics > Explore**.
2. In the **Frequencies** dialog box, move the variable, *age* in this case, from the left pane to the **Variable(s)** box by double-clicking it or using the arrow button. If you move the wrong variable, double-click it to move it back or use the arrow button.




```
To see the value labels of the variables when choosing variables from the
list, right-click on the variable name and select **Variable Information**.
This will display a **Variable Information** box, with a drop down menu
listing the value labels.
```

3. To add descriptive statistics, click on the **Statistics** button, and select the statistics that you want to include. To unselect a statistic, click the checkbox again and it will disappear. When done selecting statistics, click **Continue** to return to the **Explore** dialog box.
4. If you wanted to see descriptives of *age* by different levels of *degree*, you would additionally move *degree* into the factor list. Click **OK** to finish.

Output Window: Frequencies

After you run this procedure the Output Viewer will automatically appear again.

1. You will see the **Case Processing Summary**.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age of respondent	2341	99.7%	7	0.3%	2348	100.0%

2. Followed by the **Descriptives**.

Descriptives

			Statistic	Std. Error
Age of respondent	Mean		48.97	.373
	95% Confidence Interval for Mean	Lower Bound	48.24	
		Upper Bound	49.70	
	5% Trimmed Mean		48.57	
	Median		48.00	
	Variance		326.195	
	Std. Deviation		18.061	
	Minimum		18	
	Maximum		89	
	Range		71	
	Interquartile Range		29	
	Skewness		.222	.051
	Kurtosis		-.912	.101

3. New output for **Explore** will also include a **Stem and Leaf Plot**.

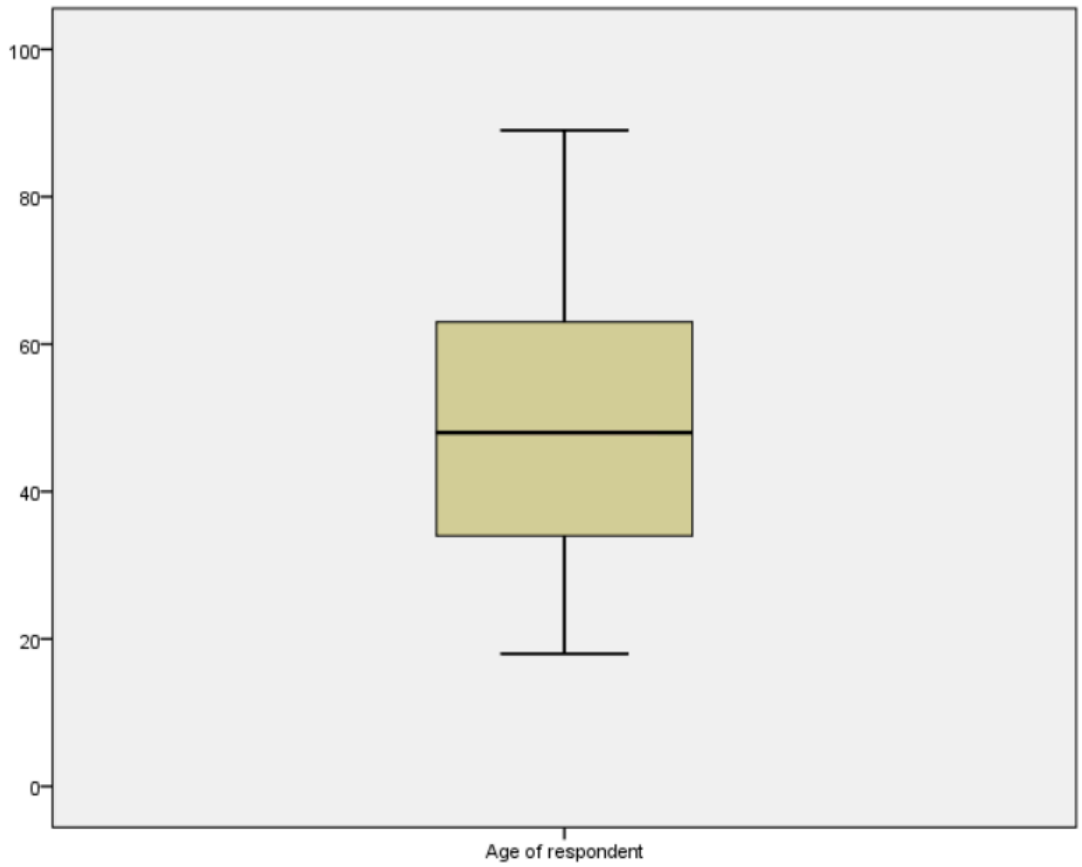
```
Age of respondent Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

    48.00        1 .  8888888999999999
   149.00        2 .  000001111111112222222222223333333333444444444444
   201.00        2 .  55555555555556666666666777777777777788888888888888999999999999999
   234.00        3 .  000000000000000001111111111122222222222223333333333333344444444444444444444444
   216.00        3 .  55555555555556666666666667777777777777888888888888899999999999999999
   200.00        4 .  00000000000000111111111111122222222222233333333333344444444444444
   165.00        4 .  555555555566666666666667777777777888888888899999999
   190.00        5 .  000000000001111111111111122222222223333333333333344444444444444
   220.00        5 .  55555555555555556666666666666666777777777777888888888888999999999999999
   179.00        6 .  00000000000000011111111111112222222233333333333444444444444
   182.00        6 .  55555555555556666666666667777777778888888888888999999999999999
   149.00        7 .  0000000000000001111111111122222223333333444444444
    90.00        7 .  555555556666667777777778888999
    50.00        8 .  0000111222233444
    68.00        8 .  555566666778889999999999

 Stem width:  10
 Each leaf:        3 case(s)
```

4. **Explore** will additionally include a **Boxplot**.

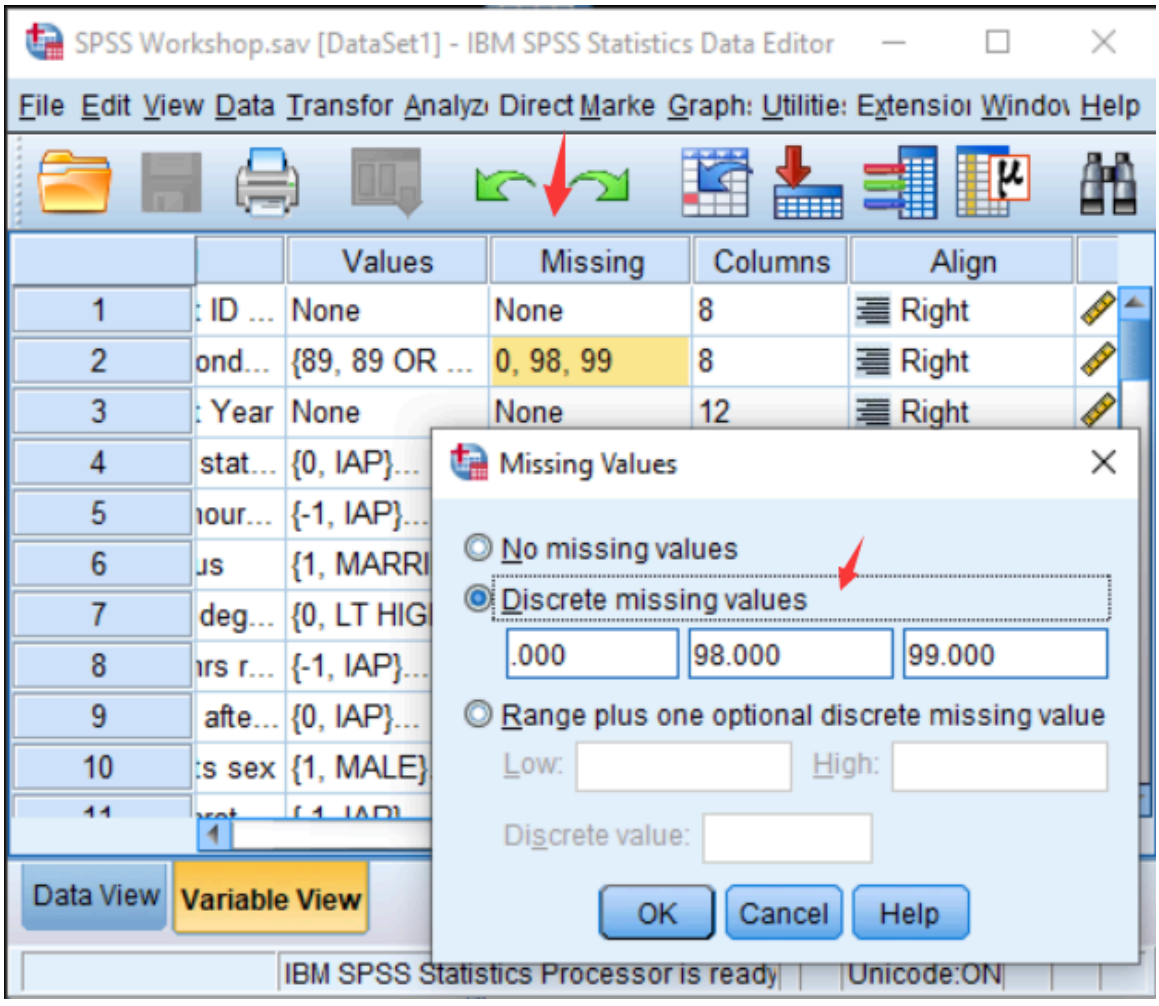


Missing Values in SPSS

Since we are using numeric values, we will have missing values. There are two types of missing values in SPSS: (1) System-missing values and (2) User-missing values.

System-missing values are the values left blank in the data and SPSS automatically treats them as system-missing values. Missing values are displayed as (.) in a cell of data view.

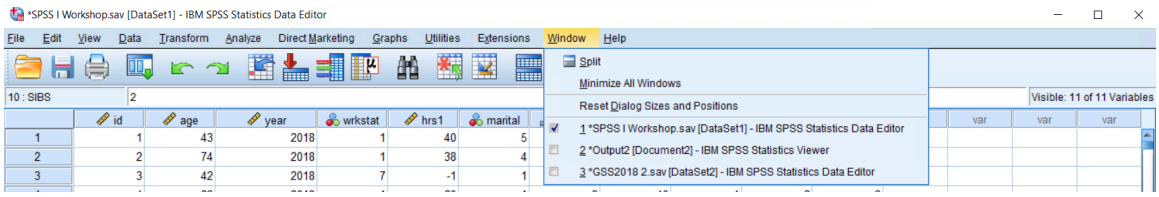
User-missing values are numeric values that are defined as missing values by the user. You can use any numeric values as long as missing values do not overlap with any existing valid values for the variable. For instance, GSS 2018 data uses negative values and a very high number for user-missing, such as "–1" as IAP (inapplicable), "98" as DK (don't know), and "99" NA (no answer). They can be entered as discrete missing values from the Missing column in Variable View.



Final Tip for Section 4: Moving from One Window to Another

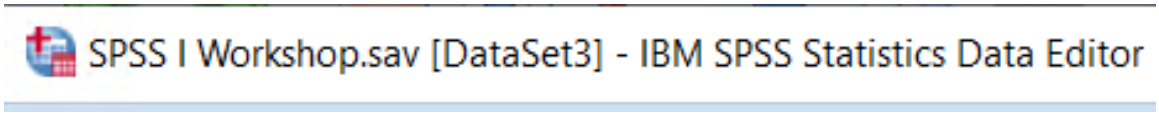
If more than one window is open in SPSS, it is possible to switch back and forth between them from the **Menu bar**. Click on the **Window** menu located on the **Menu bar**, and a list of all currently open windows will appear. The active window (the window currently displayed on the

screen) is indicated with a check mark. To activate a different window, click on the name of that window.



Active and Inactive Windows

You can also tell which data window is active from the icon that appears next to the file name in the **Title bar**. Active data sets will have a *red plus sign* next to the file name. This icon will not appear next to inactive data sets. Differentiating between active data sets and inactive datas sets will be particularly important later on when you work with multiple data sets and begin merging sets together.



Exercise 1

Run frequencies for the variable *sibs* (number of brothers and sisters).

1. What is the total number of cases?
2. What is the number of valid and missing cases?
3. What are the mean, median, mode, range, and standard deviation of this variable?

(See Appendix A for answers.)

Data Transformation

There are several ways to transform a variable: recoding, computing, and visual binning.

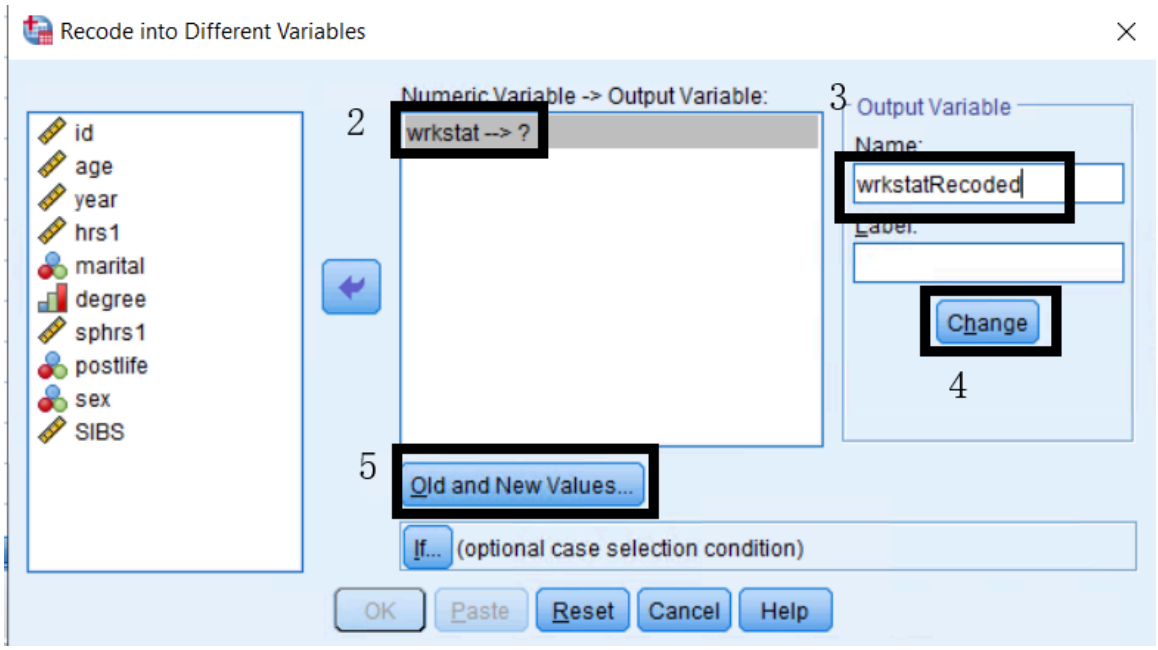
Recoding Variables

The **Recode** procedure changes, rearranges, or consolidates the values of an existing variable. If you have a variable with multiple categories (e.g., The variable *wrkstat*, which represents the respondent's labor force status, has the 8 categories listed below), you might want to reduce the number of categories to a more manageable number. For example, you can regroup people as "In the labor force" (values 1 through 3), and "Not in the labor force" (values 4 through 8).

> **Note**
>
> The **Recode into Different Variables** procedure will create a new variable in your data set while leaving the original variable unchanged. Using **Recode into Same Variables** permanently overwrites the original variable in the data set, instead of making a new variable.

To recode a variable into a different variable:

1. In the **Menu bar**, select **Transform > Recode into Different Variables**.
2. Move the variable to be recoded from the variable list on the left, in this case *wrkstat*, to the **Numeric Variable** box, either by double-clicking it or using the arrow button.



3. Specify a name for the **Output Variable** (the new variable that you will be creating) in the **Name box** located in the upper right part of the dialog box. Remember that SPSS variable names can have a length of up to 64 characters, cannot contain spaces, and must start with a letter. You may also add a label for this new variable in the **Label** box. Here we are using the name *wrkstatRecoded*.
4. Click the **Change** button after you have entered the name and label.

> **Important**
>
> SPSS will not allow you to continue until you give a new variable a name.

5. Click the **Old and New Values** button, to specify the new values.

The basic idea is to map the new values onto old values – that is, you need to "pair" old and new values. A wide variety of recoding options are available. Each option assigns a new value to a specific old value or values.

Information about the **Old Value** of the variable is entered on the left side, and the **New Value** is entered on the right side of the dialog box. Old and new values can be assigned in a number of ways in this dialog box.

For the **Old Value**:

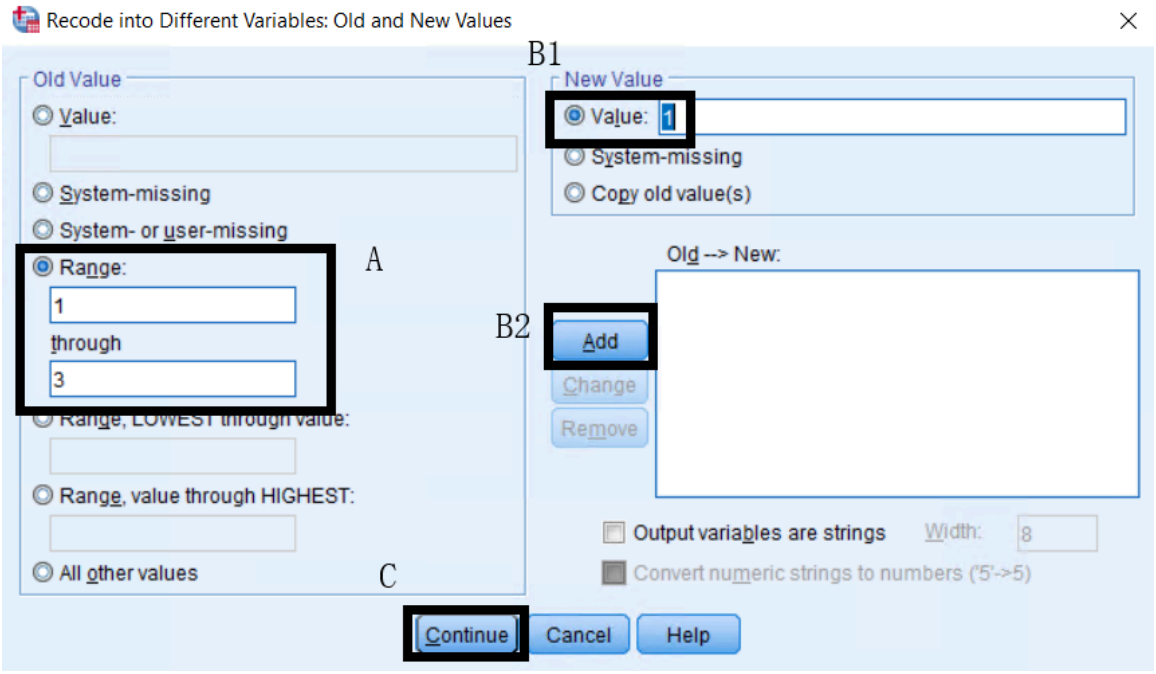
- **Value**: The specific old value to be recoded.
- **Range** (A): All old values in the specified range will be recoded. You may use a specific range, all values from the lowest to a specified value (**Lowest through**), or a specified value to the highest (**through Highest**) can be recoded.
- **All other values**: Refers to all original values not previously specified.
- **System-Missing**: Refers to system defined missing values only.
- **System- or User-Missing**: Refers to all system AND user-defined missing values.

For the **New Value**:

- **Value**: The new value to be applied.
- **System Missing**: Used to generate a missing value in the new variable.
- **Copy old value**: This option is used when you want to copy the values specified in **Old Values** to the new variable.

6. Under **Old Value**, enter a **Range** of 1 through 3.

7. Enter a **New Value** of 1, and click **Add**.

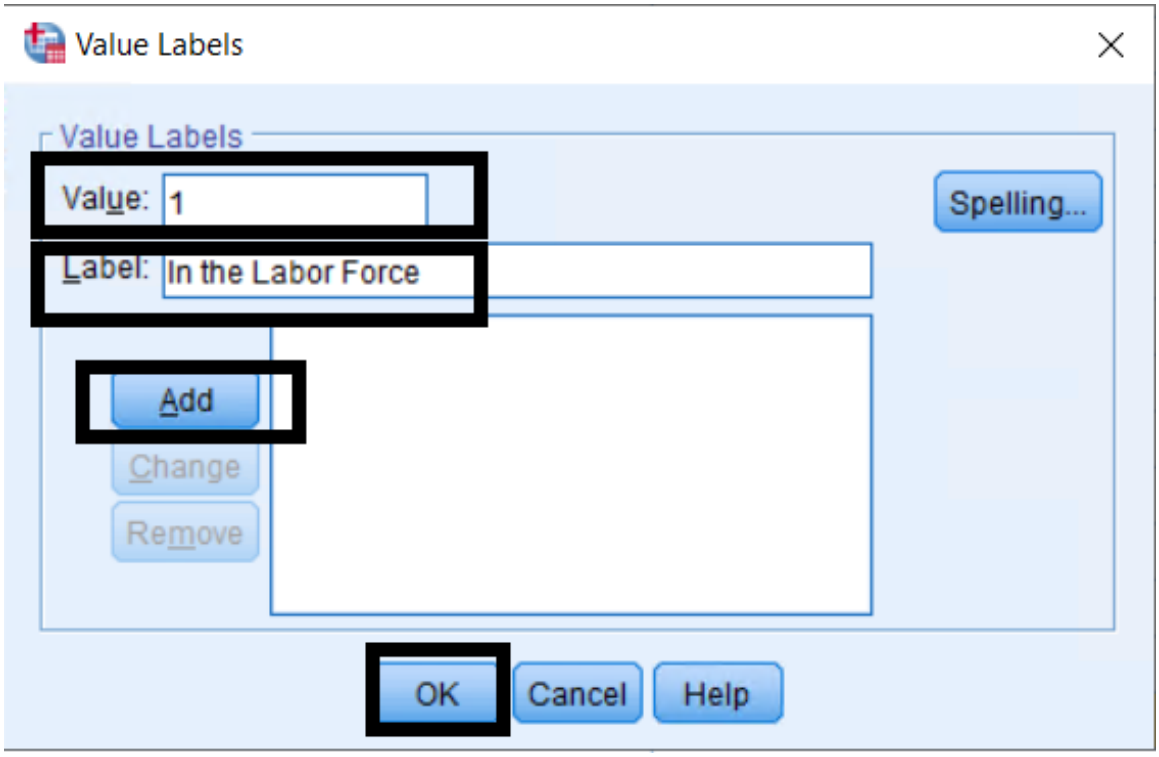


7. Repeat steps (a) and (b), changing the **Range** for the **Old Value** to 4 through 8 and the **New Value** to 2.
8. Click **Continue** to return back to the **Recode into Different Variables** dialog box.
9. Now, click **OK** to finish. The new variable will now appear in your data set.

When you create a new variable, it is always added to the end of the dataset - the new variable will be the furthest to the right in the data view window or at the bottom of the variable view window.

To add value labels to your new variable:

1. Return to the **Variable View**, and highlight the **Values** cell of the variable *wrkstatRecoded*.
2. Within the **Values** cells, click the blue button with three dots (**. . .**) to open the **Value Labels** dialog box.
3. Enter the labels 1 "In the Labor Force" and 2 "Not in the Labor Force", and click **OK** to save your changes.



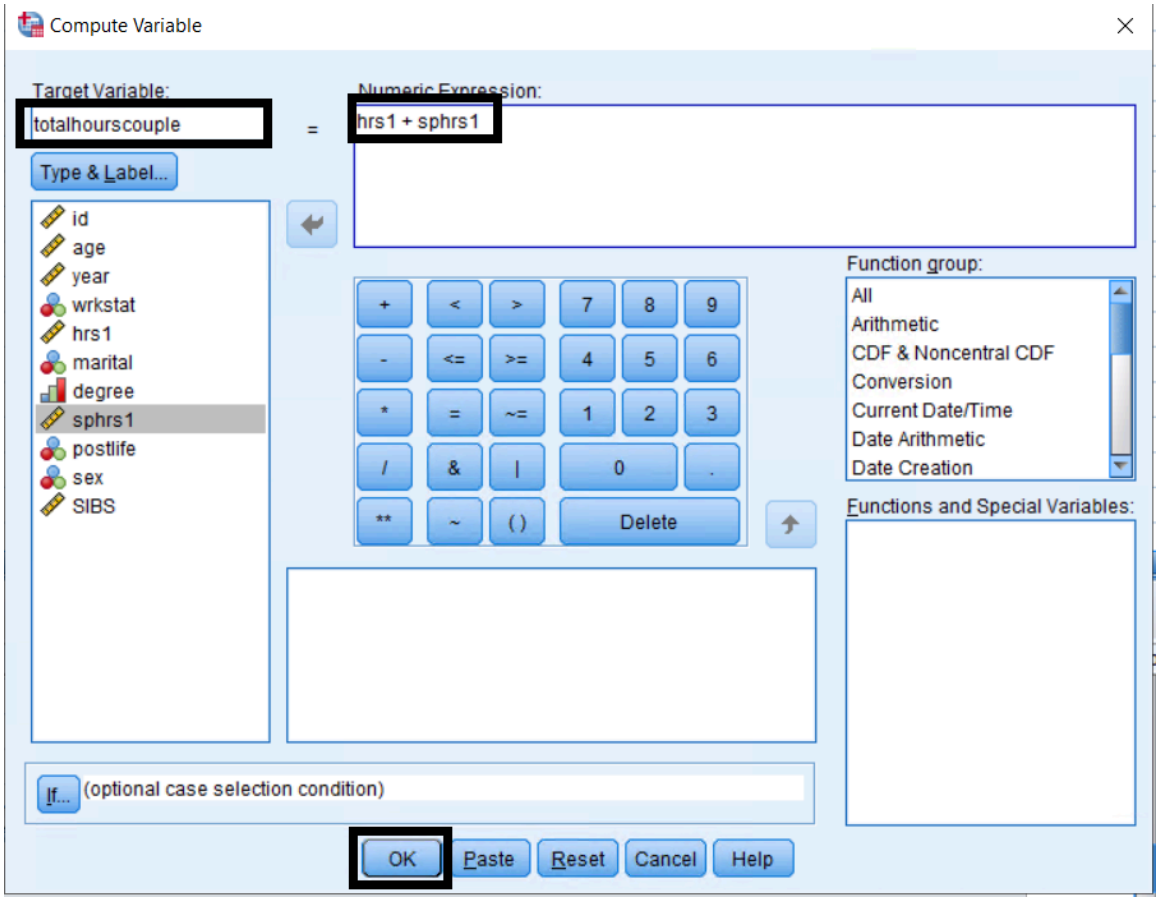
Always verify that your new variable has been coded correctly by running a frequency.

Make a mistake recoding a variable?
If you make a mistake when using the **Recode** procedure to create a new variable, follow the instructions in this section to perform the recode again. Notice that all of the previous changes are still stored in the system making it easier to fix a variable you have already coded.

Compute

The **Compute Variable** procedure creates new numeric variables or modifies the values of existing string or numeric variables. This procedure will create a new variable in the data set while leaving the original variable(s) unchanged. For example, you can use **Compute** to create a new variable: *totalHourcouple* , indicating number of hours the couple worked last week based on two variables: *hrs1* (Number of hours the respondent worked last week) and *sphrs1* (Number of hours the respondent's spouse worked last week).

1. In the **Menu bar**, select **Transform > Compute Variable**.
2. Enter *totalHourscouple* as the name for the new variable in the **Target Variable** box.



3. Click **Type and Label** to enter a label for the new variable and specify the variable type (numeric or string).
4. In the **Numeric Expression**, specify how the new variable will be computed in the **Compute Variable** dialog box, either by typing the expression or using the variable lists, functions, and key pad.

In this example, use the expression *hrs1 + sphrs1* to generate the *totalHourscouple* variable.

5. Click **OK** to compute the new variable.

Remember to check to see that the new variable was created in the data editor and run a frequency to verify the information in the variable is correct.

Note on Missing Cases: There are 967 missing cases for the variable *hrs1* and 1,711 missing cases for the variable *sphrs1* while there are 1,896 missing cases for the new variable, *totalHourscouple*.

Statistics

		hrs1	sphrs1	totalhourscouple
N	Valid	1381	637	452
	Missing	967	1711	1896

The difference in the number of missing cases occurs because SPSS ignores cases with missing values on any of the component variables when computing a new variable using an arithmetic operator (i.e., + or -). Consequently, all cases with at least one missing value in either variable are given a missing value for new variables. Alternatively, when you use **Functions** (i.e., Sum(*numexpr, numexpr*)) instead of an arithmetic operator, SPSS calculates a value for a new variable based on all valid values for the component variables. If a case has only one valid value, that value will be used in the new variable. You can see how this works in Exercise 2.

Exercise 2

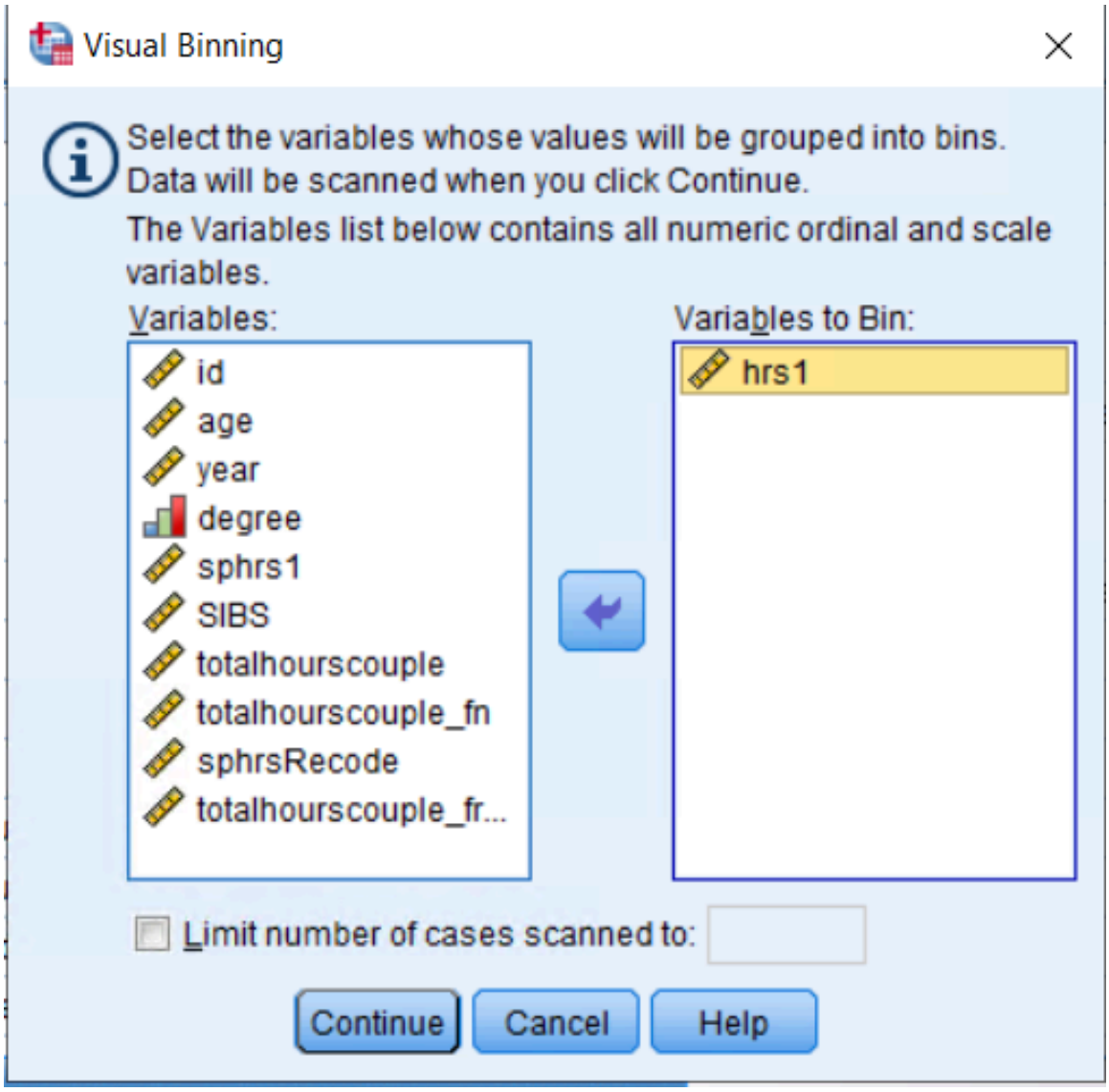
To practice the compute and recoding procedures, create a new variable using two different methods. 1. With the **Compute Variable** procedure, use the sum function *Sum(numexpr, numexpr)* to create a new variable *totalHourscouple_fn*, the function sum of *hrs1* and *sphrs1*. 2. Use the **Recode into Different Variables** procedure to give a value of "0" to cases with a missing value in *hrs1* and *sphrs1*, so that all cases in the data set have a valid value for the new variables. For all other values, specify Copy Old Values. Name these new variables *hrsRecode* and *sphrsRecode*, respectively. 3. Use the **Compute Variable** procedure to create a new variable *totalHourscouple_fromRecoded* that sums the variables *hrsRecode* and *sphrsRecode* using the arithmetic operator (+). 4. Generate frequency tables to compare the new variables.

(See Appendix A for answers.)

Visual Binning

Visual Binning is used to create a categorical variable from a scale variable. Binning refers to taking two or more continuous values and grouping them into the same category. For example, **Visual Binning** can be used to group a variable with a large number of values, such as the number of hours a respondent worked last week, into two or more categories.

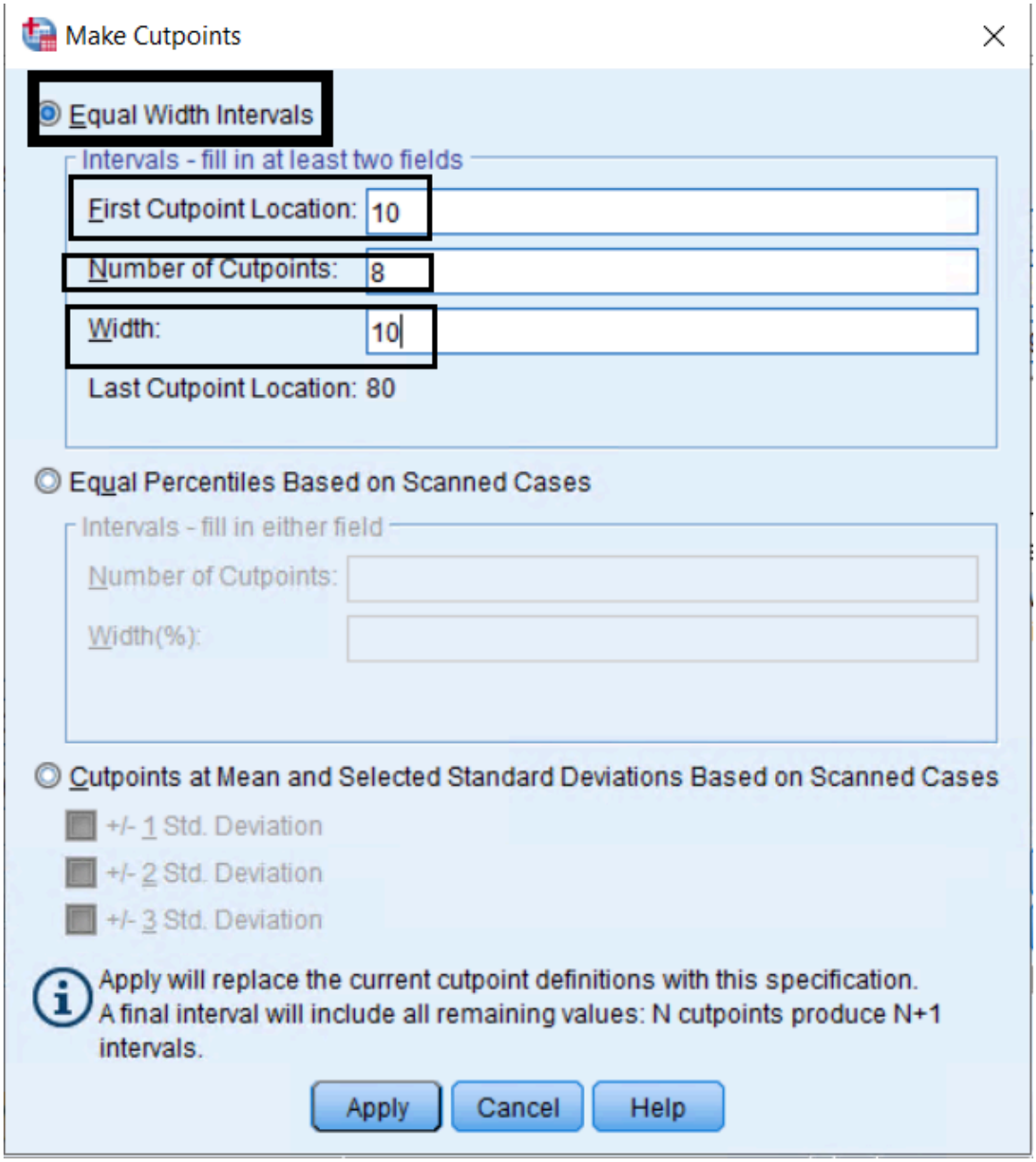
1. In the **Menu bar**, select **Transform** > **Visual Binning**.
2. Move *hrs1* from the **Variables** list to the **Variables to Bin** list, and click **Continue**.



3. Click on the variable *hrs1* in the **Scanned Variable List** box. You will now see a bar graph for this variable.

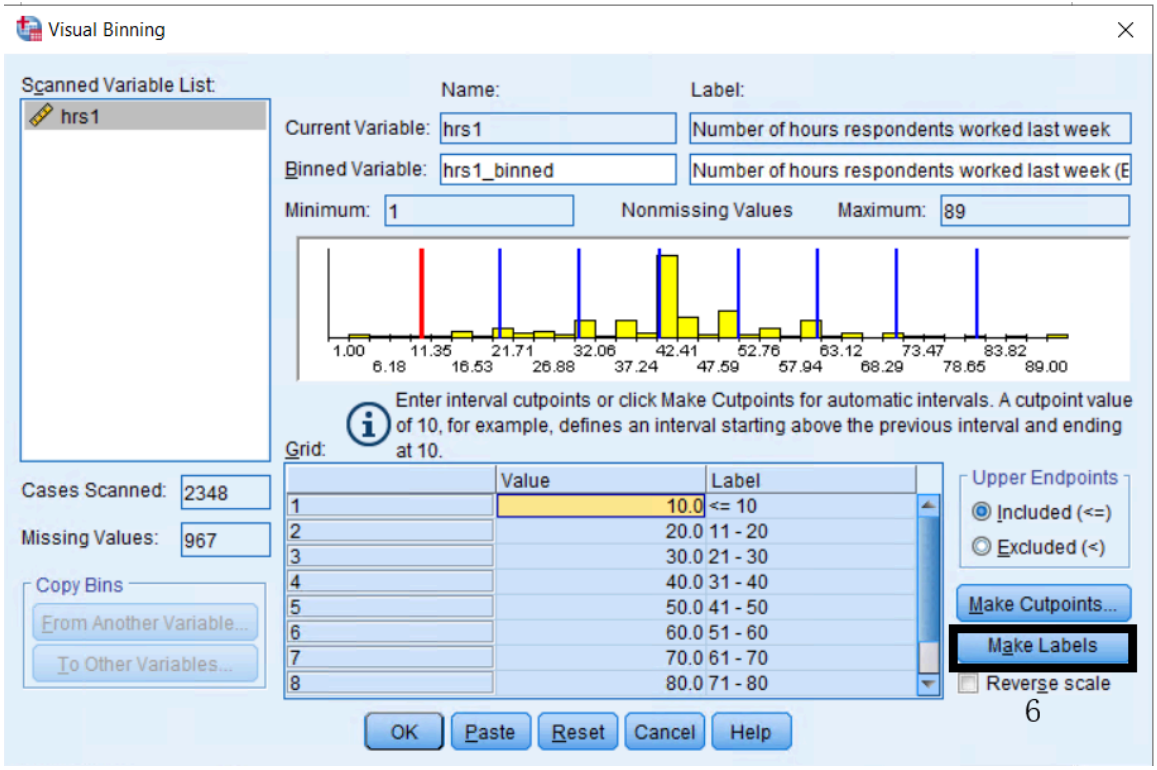
4. Type a name for the new variable in the **Binned Variable** box, here we are using *hrs1_binned* and edit the variable label if needed.
5. Click **Make Cutpoints** to generate categories automatically.

There are three ways to create cut points automatically: at automatic intervals for equal width intervals, intervals with the same number of cases (SPSS calls this "Equal Percentiles Based on Scanned Cases"), or intervals based on standard deviations. In this case, select **Equal width intervals**.



The number of cutpoints is the number of categories minus one. Because we want to create 9 categories in this example (e.g., 9-1 = 8), we will use 8 cutpoints.

6. In the **Make Cutpoints** dialog box, enter "10" for the **First Cutpoint Location**, "8" for the **Number of Cutpoints**, and "10" for the **width**. Note that categories can also be created manually by entering interval cutpoints in the **Value** column.
7. Click Apply to return to **Visual Binning** dialog box.



The blue vertical lines in the histogram indicate the locations of the cutpoints that have been created. To automatically generate labels for each category, click on **Make Labels**. Labels can also be entered manually in the **Label** column.

Click **OK** to create the new variable. Remember to confirm that a new variable was generated and check it, using a frequency table.

Note: **Visual Binning** preserves the missing values of the original variable in the binned variable.

Exercise 3

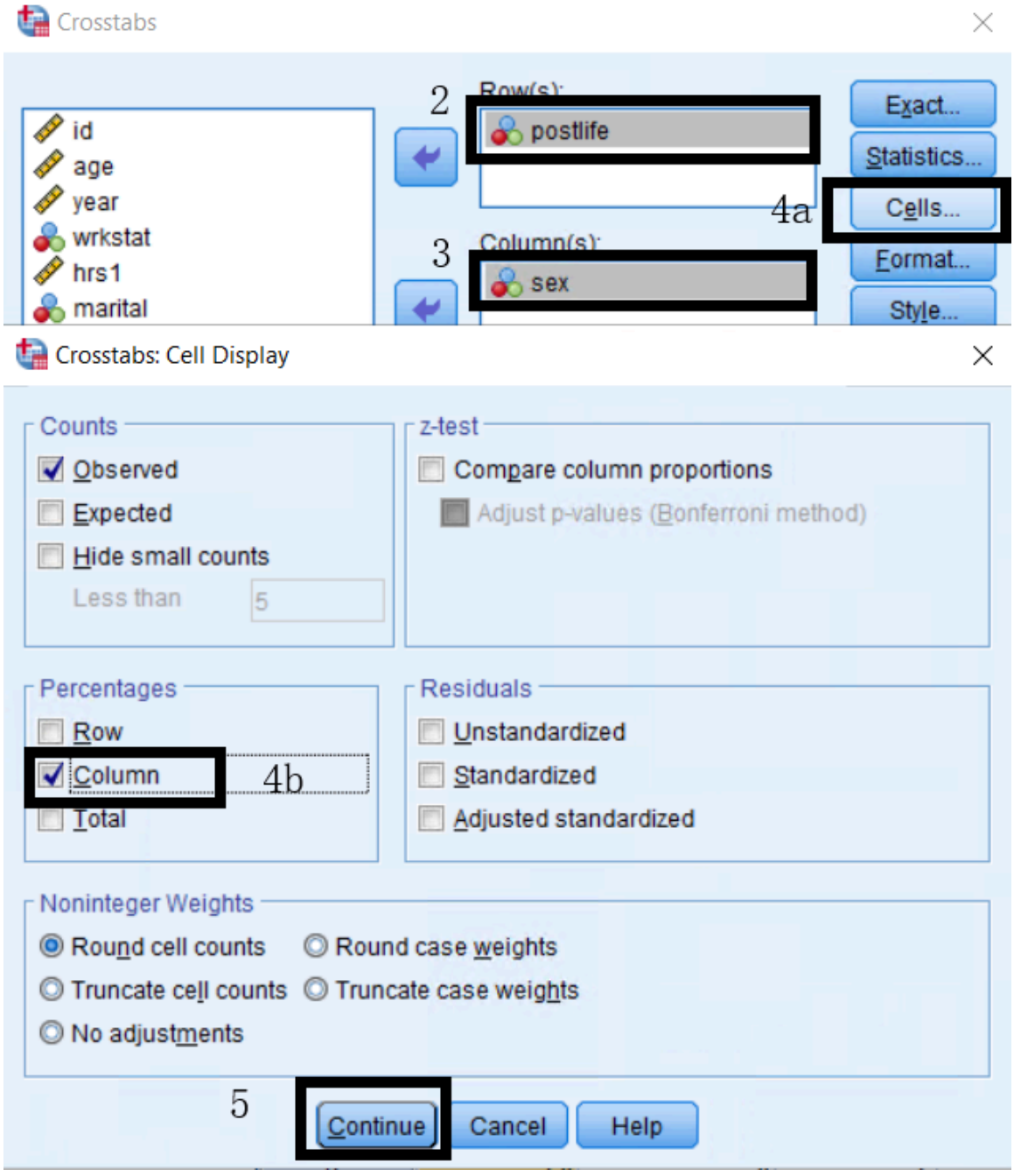
Using **Visual Binning**, create a categorical variable, *agekdbrn_binned* from the scale variable *agekdbrn* (Respondent's age when their first child was born). Insert the cutpoints manually to create four categories: "Teens" (13 through 19), "20s" (20 through 29), "30s" (30 through 39), and "40s" (40 through 49). (See Appendix A for answers.)

Multivariate Tables

The **Crosstabs** procedure produces contingency tables showing the joint distribution of two categorical variables. The frequency distribution of one variable is subdivided according to the values of one variables. The unique combination of values for two variables defines a cell. For example, we will use a crosstab to examine the distribution of the variable *postlife* (Belief in life after death) by *sex*:

1. In the **Menu bar**, select **Analyze** > **Descriptive Statistics** > **Crosstabs**.
2. Move the dependent variable *postlife* into **Row(s)**.

3. Move the independent variable *sex* into **Column(s)**.



4. Click on **Cells**, and select **Column** for **Percentages**.

When selecting whether you want column or row percentages, you will always want whichever contains the independent variable. In this case, our independent variable *sex* is in the column, so we want column percentages. Therefore, the interpretation would be the percentage of men who believe in life after death or the percentage of women who believe in life after death.

5. Click on **Continue** and **OK** to finish.

Interpretation of Crosstab Output

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Belief in life after death * Respondents sex	2123	90.4%	225	9.6%	2348	100.0%

Belief in life after death * Respondents sex Crosstabulation

			Respondents sex		
			MALE	FEMALE	Total
Belief in life after death	YES	Count	703	1017	1720
		% within Respondents sex	74.4%	86.3%	81.0%
	NO	Count	242	161	403
		% within Respondents sex	25.6%	13.7%	19.0%
Total		Count	945	1178	2123
		% within Respondents sex	100.0%	100.0%	100.0%

1. Number of valid cases: 2,123 cases are included in the crosstabs table.
2. Number of missing cases: 225 cases do not have a valid value for at least one of the variables.
3. 74.4.
4. Combining male and female, 81.0.

> **i** Note
>
> Only valid values are included in the Crosstabs table. A case with a missing value for at least one of the variables will be excluded from the table.

Exercise 4

Find out how many foreign-born and native-born survey respondents can speak a language other than English/Spanish. That is, run a crosstab using the variables *othlang* (Can the respondent speak a language other than English/Spanish?) and *born* (Was the respondent born in this country?). (See Appendix A for answers.)

Graphics

Creating Charts using Chart Builder

The **Chart Builder** allows you to build charts from a pre-defined gallery or from individual parts (i.e., axes and bars). Charts are created by dragging and dropping the gallery charts or basic elements onto the **Canvas**, which is the large area to the right of the **Variables** list in the **Chart Builder** dialogue box. As you are building the chart, the **canvas** displays a preview of the chart.

The measurement level of your variables, whether it is scale, ordinal, or nominal, is very important because the **Chart Builder** uses this measurement to determine certain defaults while building a chart. Thus, a chart may look different for different measurement levels. A variable's measurement level can be changed temporarily from within the **Chart Builder** by right-clicking the variable and choosing a new measurement level.

Chart Builder Layout and Terms

To access the **Chart builder**, select **Graphs > Chart Builder** in the **Menu Bar**.

- **Canvas**: The canvas is the area of the **Chart Builder** dialog box where you build the chart.
- **Drop Zones**: Drop zones are the areas on the canvas to which you drag and drop a variable from the **Variables** list. As noted previously, the basic drop zone is the axis drop zone. Certain gallery charts (like clustered or stacked bar charts) include grouping drop zones. Additional drop zones may be added from the **Groups/Point ID** tab. Note that you may only add a variable to a zone when the text in the zone is blue. If the text is black, the zone already contains a variable or statistic.
- **Axis Set**: An axis set defines one or more axes in a particular coordinate space (like 2-D rectangular or 1-D polar). Adding a gallery item to the canvas automatically creates an axis set. You can also choose one from the **Basic Elements** tab. Each axis includes an axis drop zone for dragging and dropping variables. Blue text indicates that the zone still requires a variable. Note that every chart requires that you add a variable to the x-axis drop zone.
- **Graphic Elements**: Graphic elements are the items in the chart that represent data. These are bars, points, lines, and so on.
- **Variables List**: This list displays the available variables. If a variable selected in this list is categorical, the categories will be listed under the **Variables** list. This list can also be used to view the variables that make up a multiple response set.

The tabs that appear in the bottom half of the **Chart Builder** dialog box are used to select the chart type, add grouping variables, and add titles to your chart.

- **Gallery**: The easiest method for building charts is to use the Gallery. Gallery charts automatically set properties and add features to simplify the creation process. Select a category of charts, and drag the picture of the desired chart onto the canvas. If the canvas already displays a chart, the gallery chart replaces the axis set and graphic elements on the chart. Drag variables from the **Variables** list and drop them into the axis drop zones and, if available, the grouping drop zone.
- **Basic Elements**: Basic elements can be used to build a chart from scratch. Basic elements include axes and graphic elements. To begin building a chart:

1. Drag an axis set onto the canvas.
2. Add a graphic element type by dragging a graphic element onto the canvas. Not all graphic elements can be used with a particular axis set. Only the relevant graphic elements are enabled.
3. Drag variables from the Variables list and drop them into the axis drop zones and, if available, the grouping drop zone. If an axis drop zone already displays a statistic and you want to use that statistic, you do not need to drag a variable into the drop zone.

- **Groups/Point ID**: To include more information in the chart (e.g., clustering or paneling), add a grouping zone to the chart. Click the **Groups/Point ID** tab and select one or more options. Then drag categorical variables to the new grouping drop zones that appear on the canvas.
- **Titles/Footnotes**: To add titles, subtitles, or footnotes to your chart:

1. Click on the **Titles/Footnotes** tab and select one or more options.
2. In the **Element Properties** dialog box, select the element you have added to the cart and enter the text for the element under **Content**.
3. Once, finished, click **Apply** to add the element to the chart.

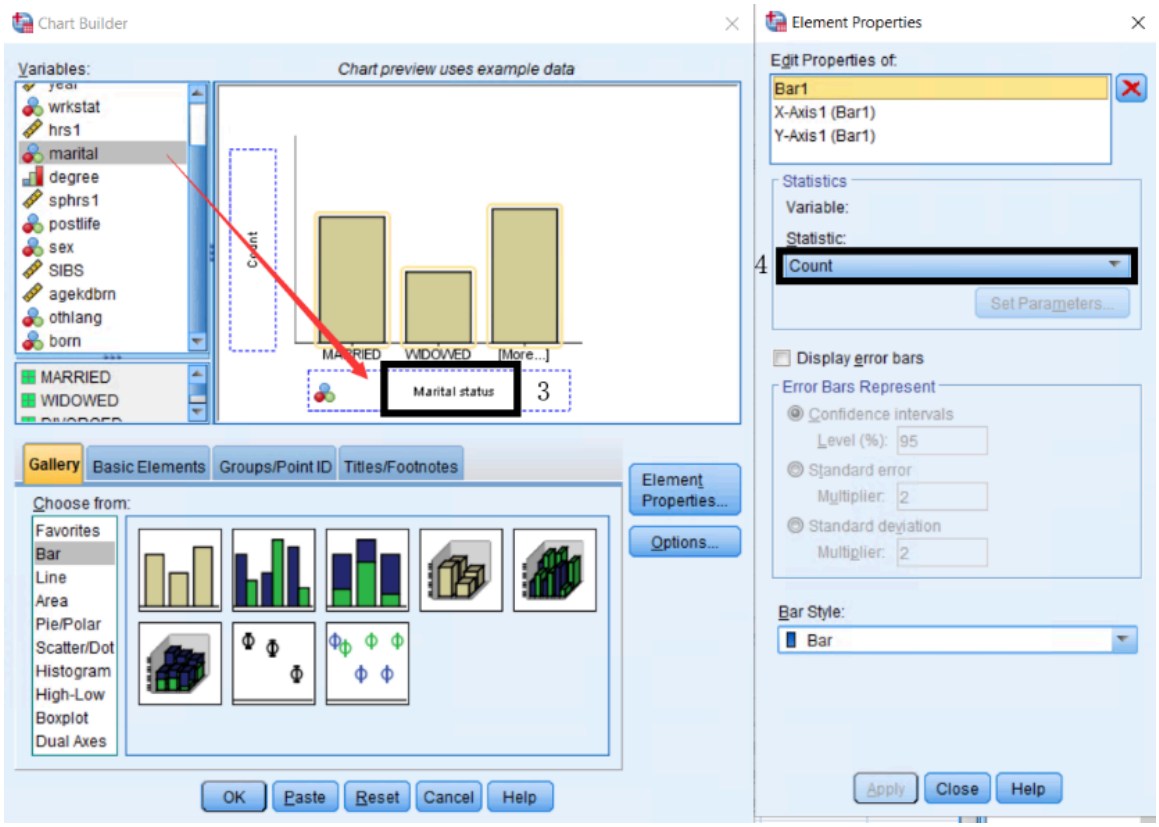
Bar Chart

A **bar chart** is a graphic representation of numerical values of a categorical variable, which uses rectangles to show a frequency or a proportion of each category in the categorical variable. Spaces are inserted between each rectangle in order to differentiate a bar chart from a **histogram**. Histograms are graphic representations of continuous variables and as such, have no spaces between each rectangle.

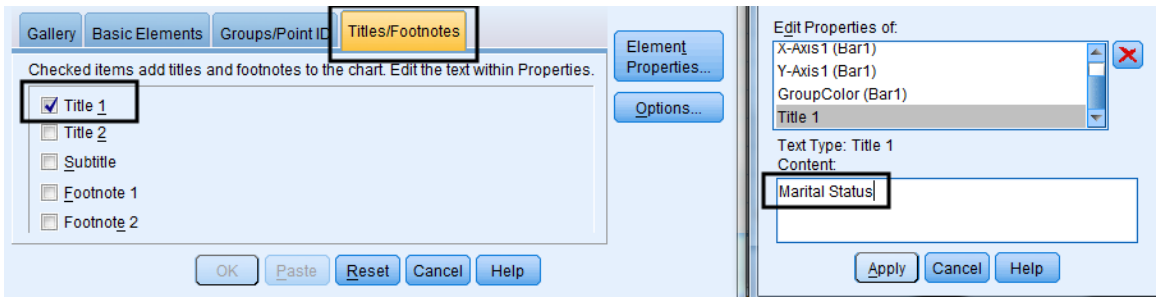
To create a bar chart for marital status, (*marital*):

1. In the **Menu Bar**, select **Graphs** > **Chart Builder**.
2. In the **Chart Builder**, click the **Gallery** tab and select **Bar** from the list.
3. Drag the **Simple Bar** icon onto the canvas and the variable *marital* to the **x-axis** drop zone.

> Tip
>
> While the preview uses **defined variable labels** and **measurement levels**, it does not display the actual data.

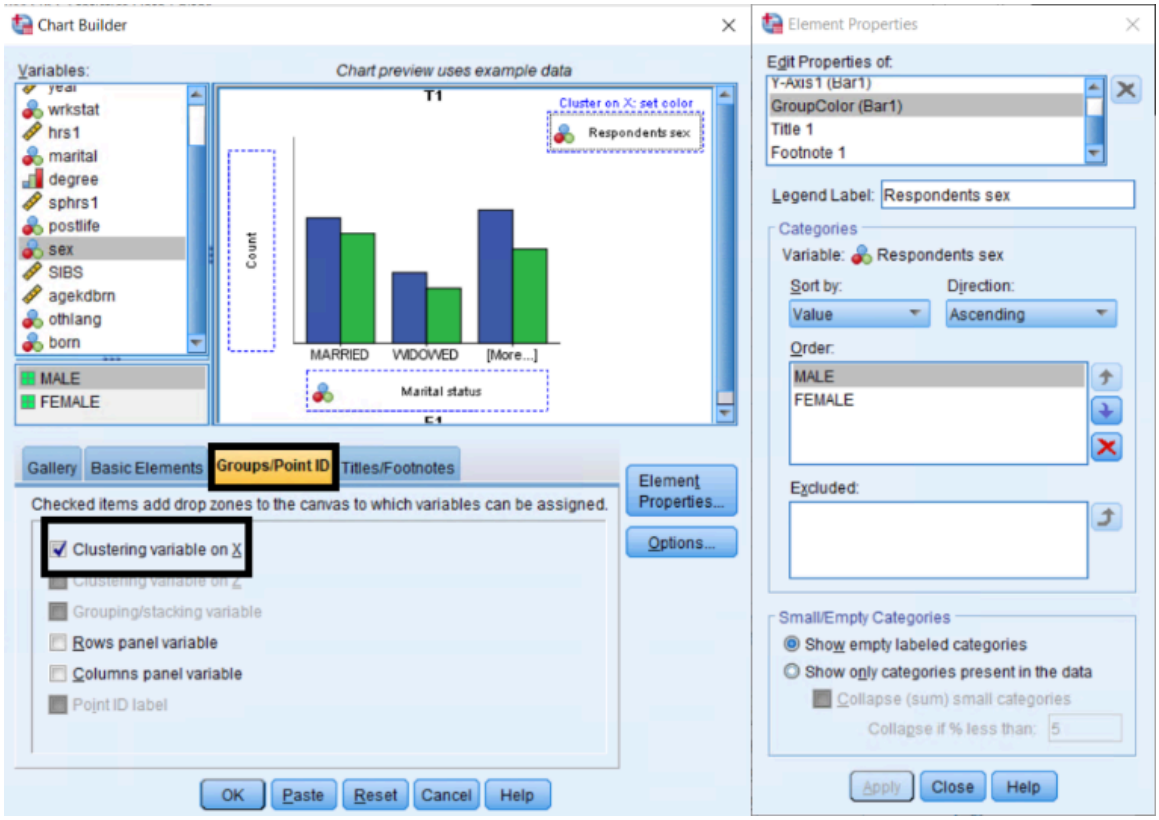


4. Specify **Count** as the statistic in the **Element Properties** window. This statistic will determine the height of the bars. There may be some chart type limitations. For example, error bar charts can be calculated only for specific statistics.
5. To add a title to the chart, click on the **Titles/Footnotes** tab, select one or more titles and footnotes and use the **Element Properties** window to edit the title/footnote text.

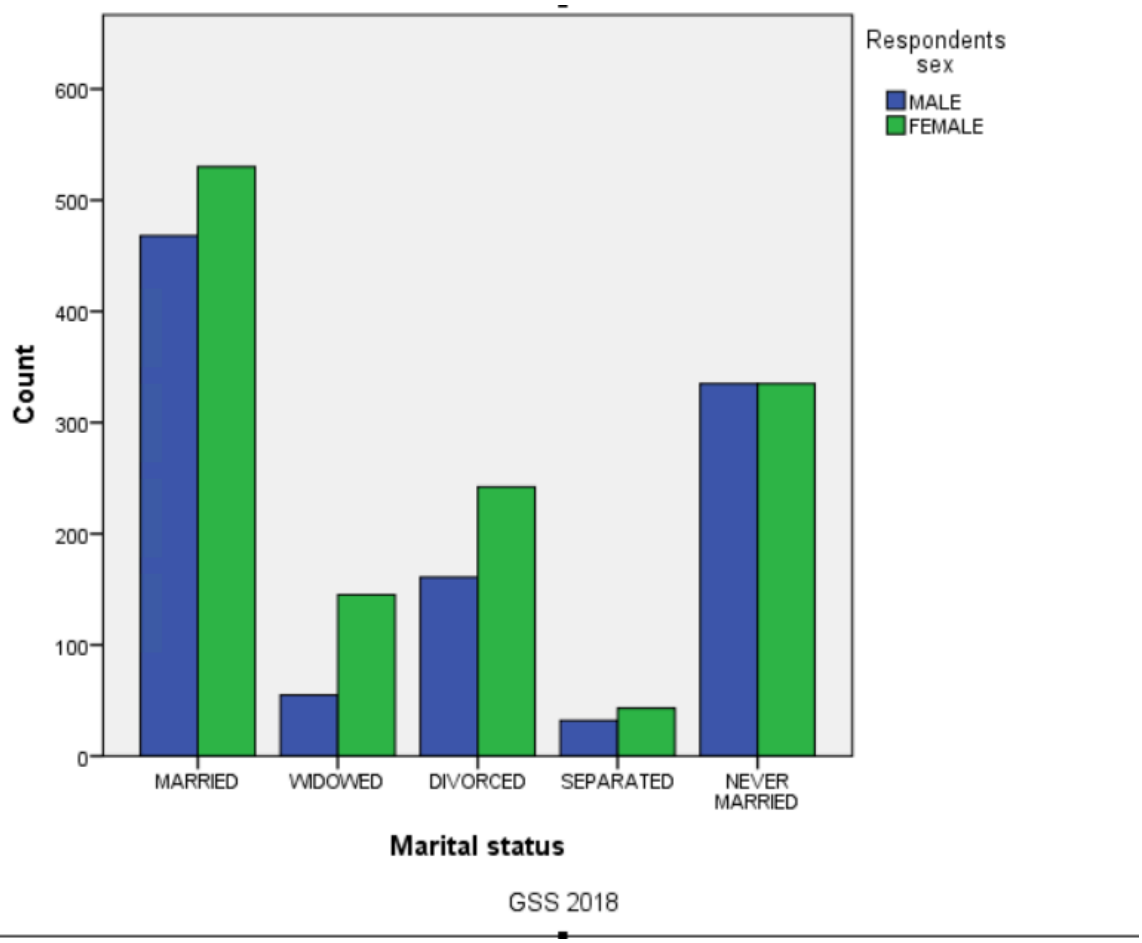


6. Select **Title 1**, type "Marital Status" into the **Content** box in the **Element Properties** window, and click **Apply**.
7. Select **Footnote 1**, type "GSS 2018", and click **Apply**.

To add a grouping variable, for example *sex*, select the **Groups/Point ID** tab, check the box for **Clustering variable on x**, and drag the variable *sex* into the **Grouping** drop zone on the canvas.



Once you're finished adding elements and editing the features of the chart, click **OK** to create the chart. Once you're finished adding elements and editing the features of the chart, click **OK** to create the chart.

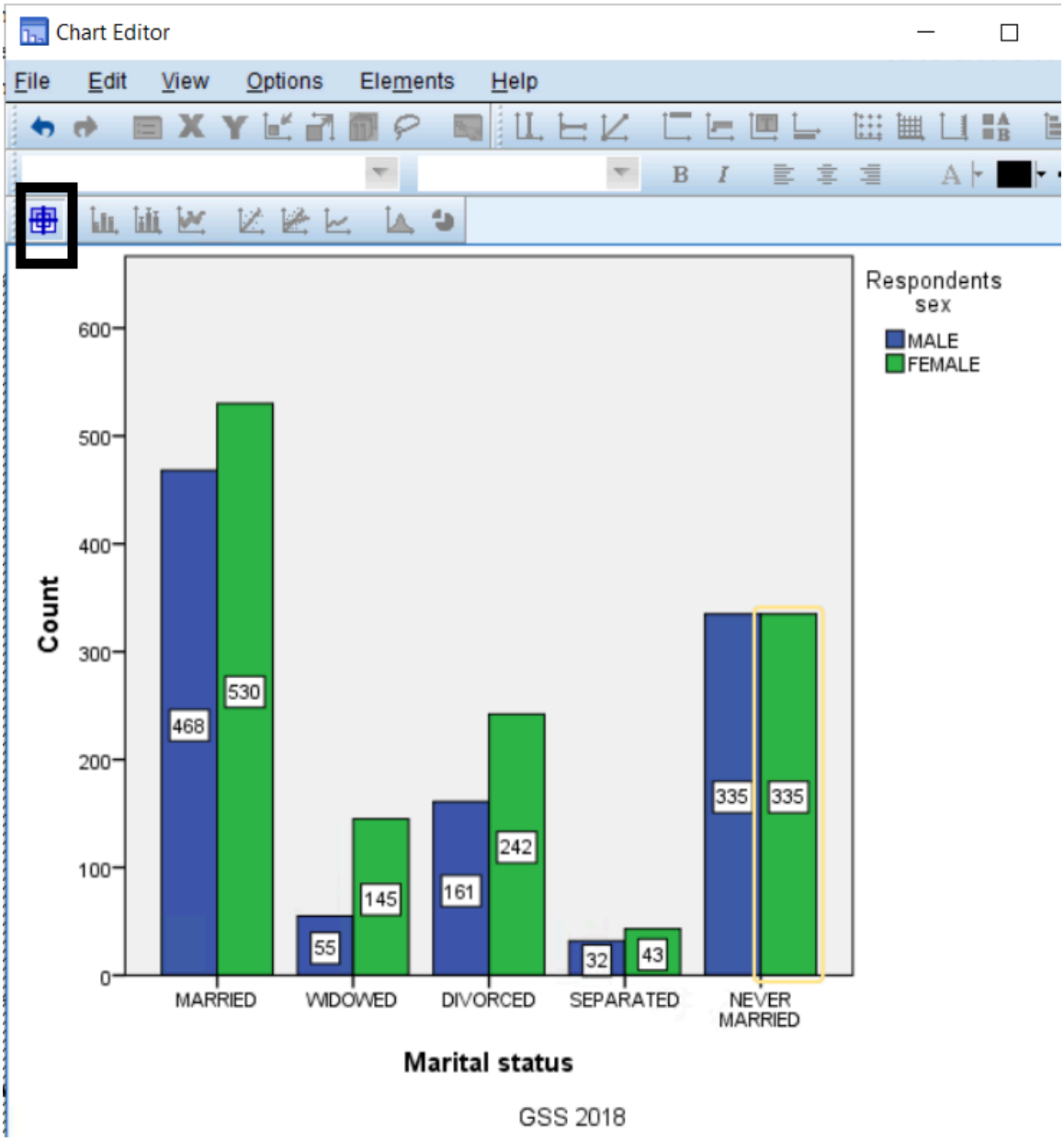


Editing a Chart

The **Chart Editor** can be opened in two ways: (1) Double-clicking on the chart or (2) right-clicking the chart and selecting **Edit Content > In Separate Window**.

Adding Data Values

Click the  **Data Label** icon in the **Toolbar**, and click once on the bar to which you want to add the data value. To delete the data value you added, bring the cursor onto the bar again, and click once. Once finished, exit the **Chart Editor** window, and your changes will appear in the **Output Viewer**.

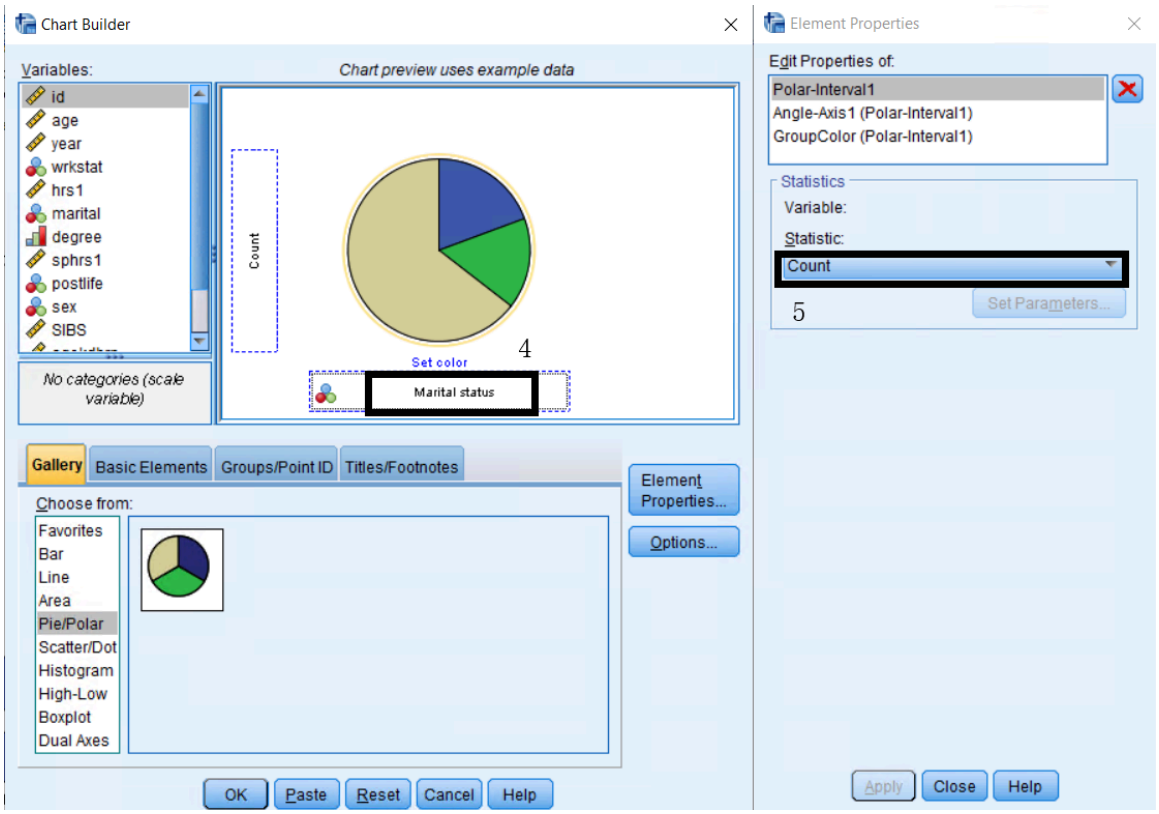


Pie Chart

A **pie chart** is a graphic representation of a categorical variable, which uses a slice in a circle (or a pie) to show the frequency or proportion of each category in the categorical variable. It is typically used to compare proportions.

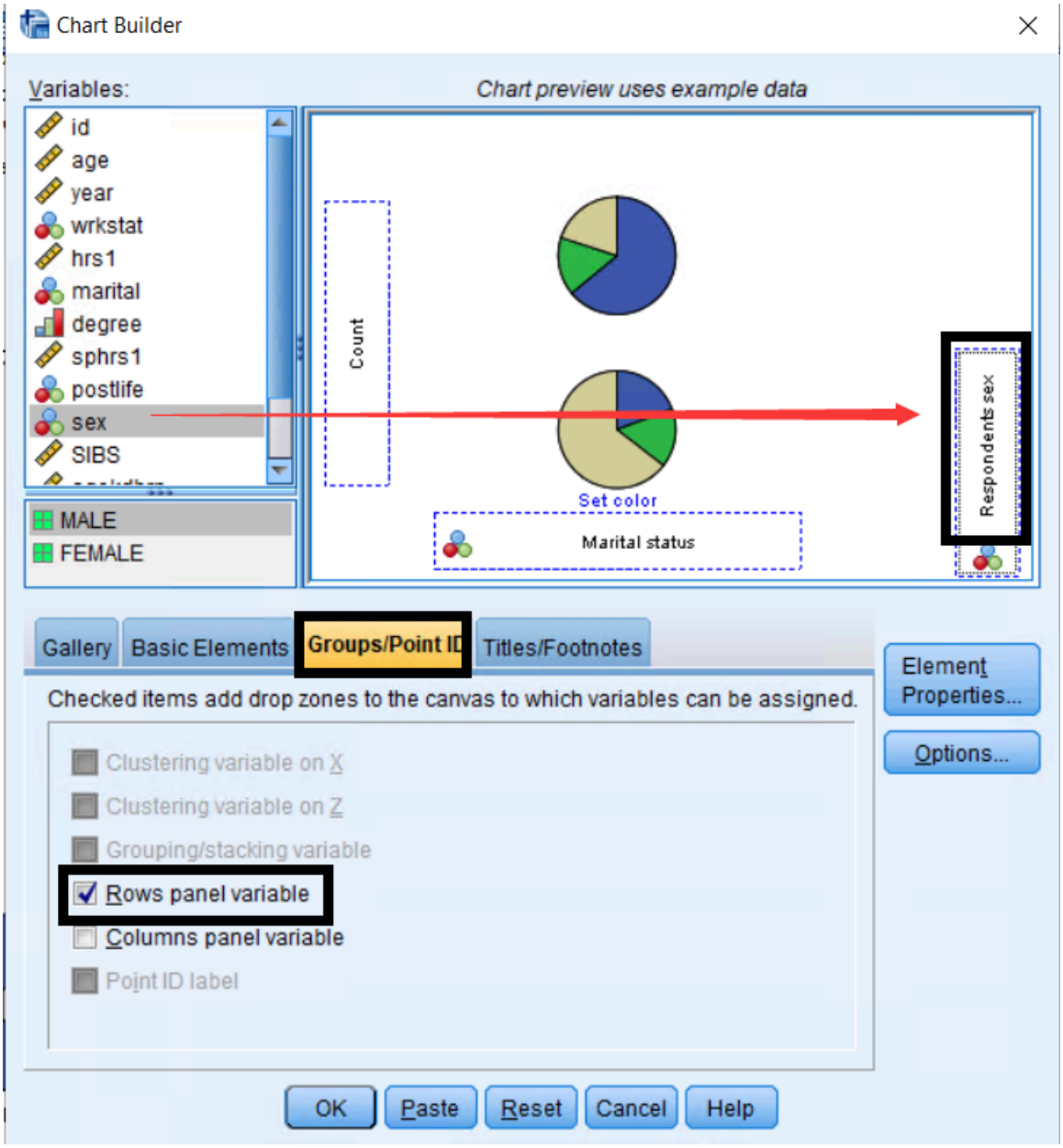
For example, a pie chart may be used to illustrate the proportional distribution of marital status.

1. In the **Menu bar**, select **Graphs > Chart Builder**.
2. In the **Chart Builder**, click the **Gallery** tab and select **Pie/Polar** from list.
3. Drag the **Pie Chart** icon onto the canvas.

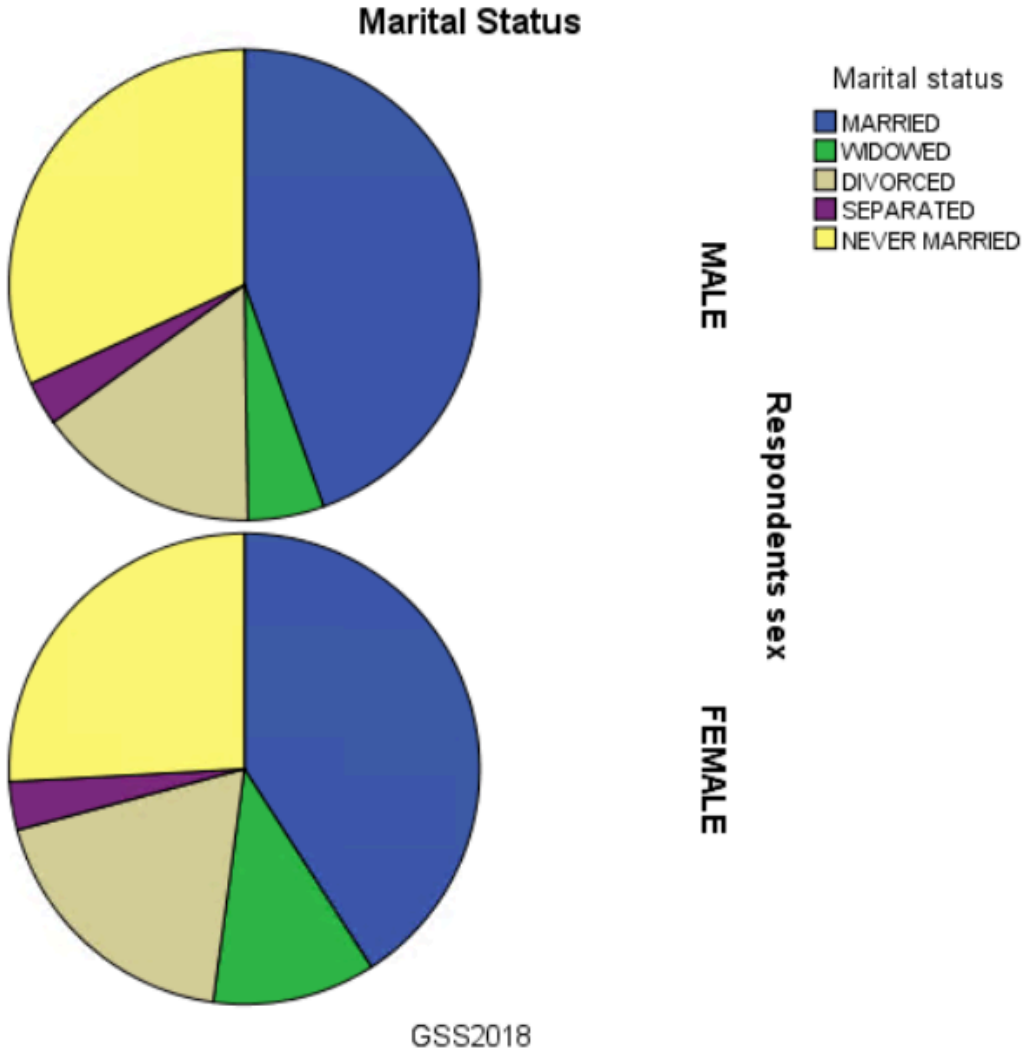


4. Drag the variable *marital* to the **Slice By** drop zone. The number of categories in the variable determines the number of slices in the pie chart.
5. Specify **Count** as the statistic in the **Element Properties** window. This statistic will determine the width of the slices.
6. To add a title to the chart, click on the **Titles/Footnotes** tab, select one or more titles and footnotes and use the **Element Properties** window to edit the title/footnote text.
7. Select **Title 1**, type "Marital Status" into the **Content** box in the **Element Properties** window, and click **Apply**.
8. Select **Footnote 1**, type "GSS 2018", and click **Apply**.

To add a grouping variable, for example *sex*, select the **Groups/Point ID** tab, select **Rows panel variable**, and drag the variable *sex* into the **Panel** drop zone on the canvas.

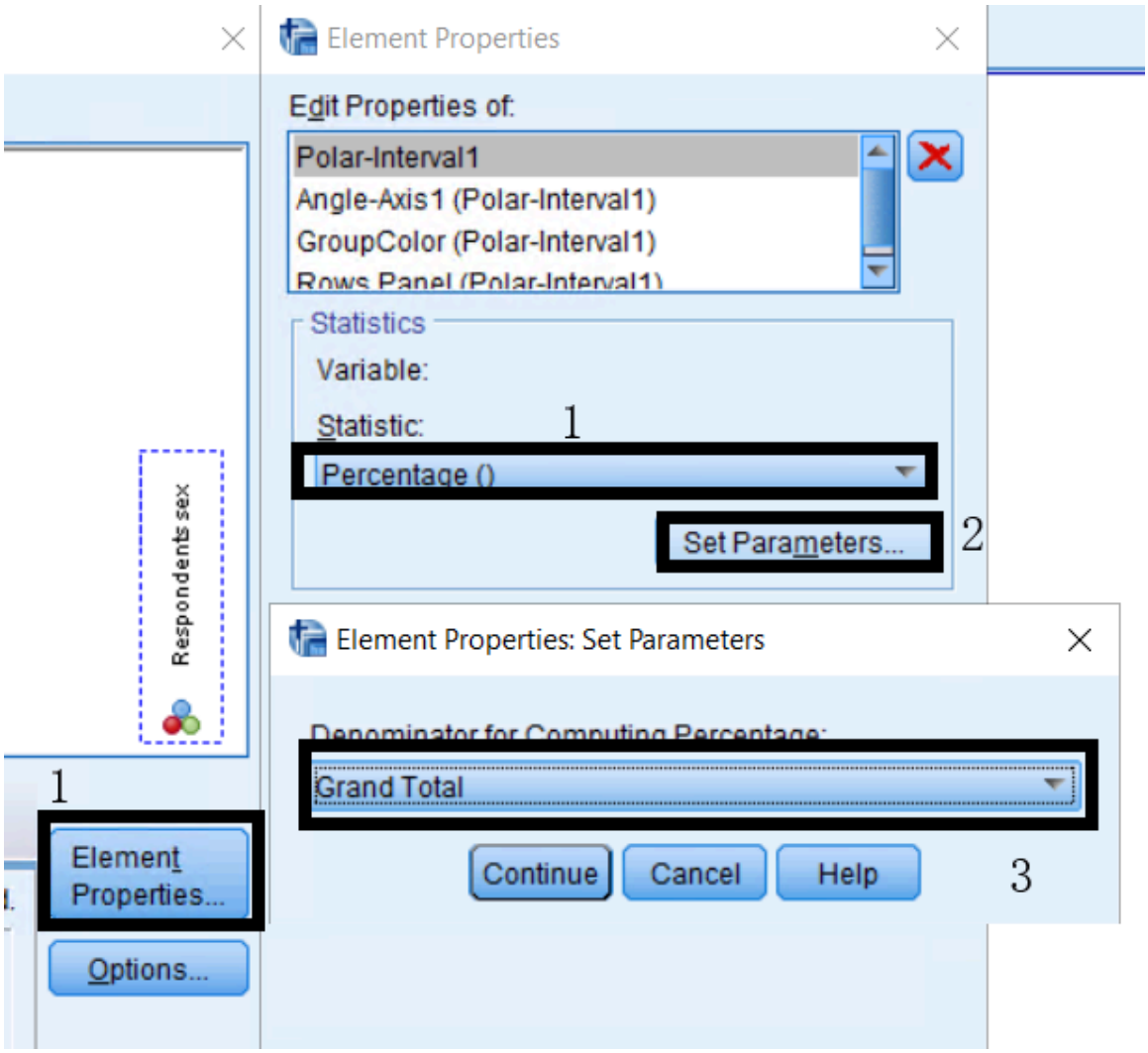


Once finished adding elements and editing the features of the chart, click **OK** to create the chart.

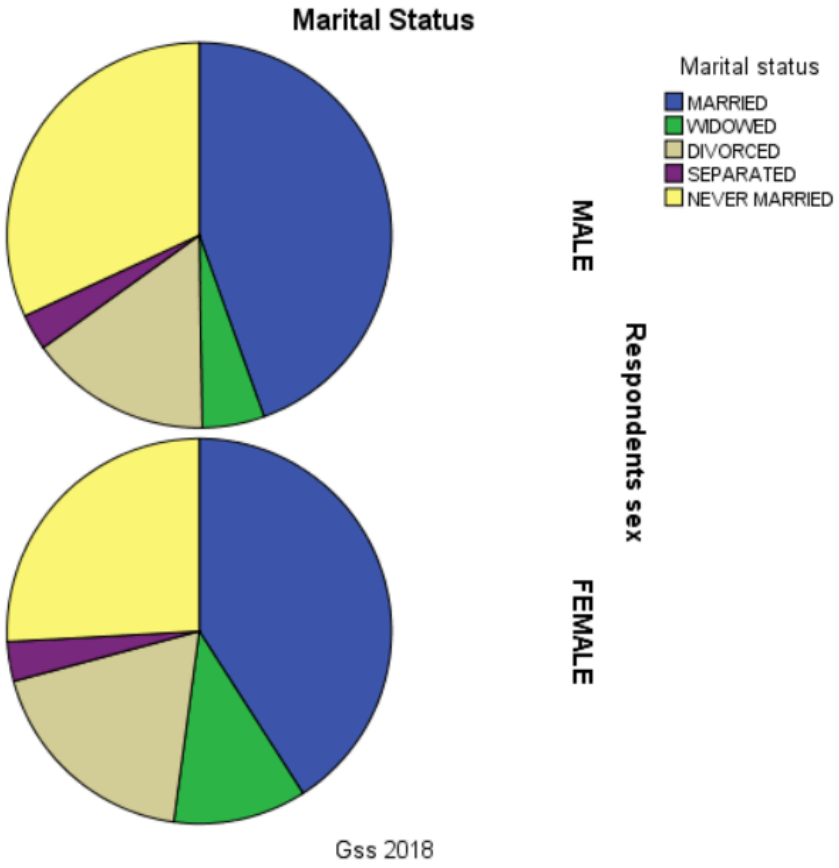


To create a pie chart using percentages based on the grand total:

1. Open the **Element Properties** dialog box and select **Percentage ()** as the **Statistic**.

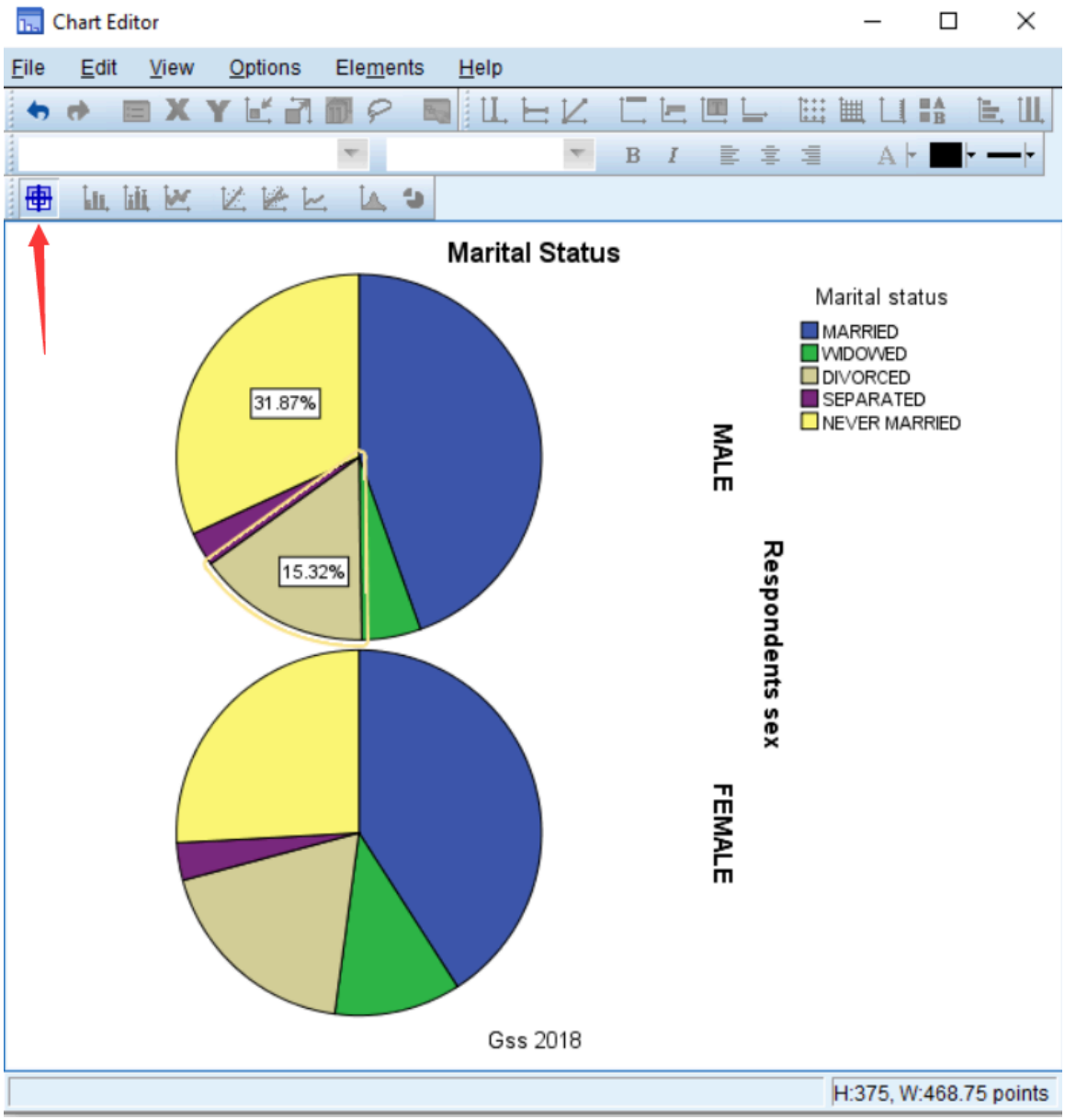


2. Next, click on **Set Parameters** and select **Grand Total**.
3. Click **Continue** and **Apply** before editing other features of the chart in the **Chart Builder**.
4. When finished editing the other features of the chart, click **OK**.

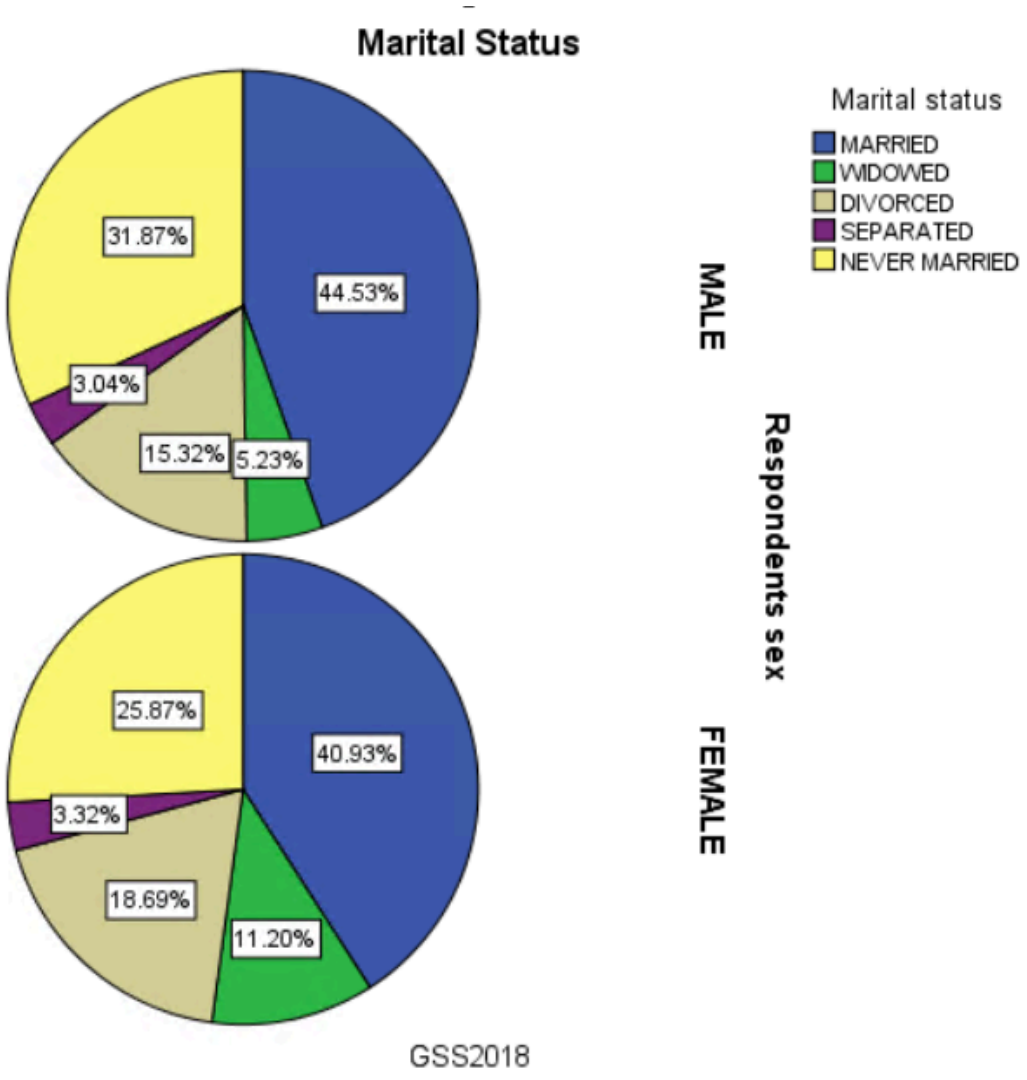


Now, in the Chart Editor, you can label the chart with percentages.

Double click on the graph to make the Chart Editor will appear. Then select Data Label Mode to label the graph. Once the Data Label Mode is active, you can click on the part of the graph for each respective group to add a percentage label. Select Apply and close the Editor.



The final graph looks like the following after labeling all groups:



Exercise 5

Create a bar chart for the variable *neisafe*. This variable is based on the question, "How safe interviewer thinks neighborhood is?" The answers are categorized as: Very Safe, Somewhat Safe, Somewhat Unsafe, Very Unsafe.

- Include the title "Interviewer's Perception for Neighborhood Safety" and footnote "GSS 2018".
- Display the data labels for each bar (in percent). What is the percentage for "Very Safe"?
- Can you change the fill color of bars and the width between bars?

(See Appendix A for answers.)

Saving and Printing

Saving your data and output

In the **Menu bar**, select **File** > **Save** or **Save as**.

When saving SPSS files:

- SPSS generates two separate files: *.sav* for data and* *.spv* for output. Thus, make sure to save *both* the data and output files before quitting the program.
- Word (*.doc*), Excel (*.xls*), PowerPoint (*.ppt*), Text (*.txt*), and HTML (*.html*) can also be used to save output results.

To export selected output, there are two options:

1. **Copy** and **Paste** the desired tables into a document.
2. Right-click on the selected table(s) and select **Export**. In the **Export Output** dialog box, click **Selected**.

To export all output into another program:

1. Right-click on the output file and select **Export**.
2. Click on the **Browse** button to specify the location where the file should be saved.
3. Under **Export Format**, select the file type (HTML, Text, Excel, Powerpoint, or Word), and click on **OK**.

> **Note**
>
> Charts cannot be exported to Text or Excel files. Thus, when exporting chart output, use HTML, Powerpoint or Word.

Printing

To print:

1. Activate the window that you want to print. If the **Data Viewer** window is open on top of the **Output** window, SPSS will assume that you want to print out the **Data Viewer** window.
2. In the **Menu bar**, select **File** > **Print**.
3. There are several options available in the **Print** dialog box.
4. The default setting is to print **All visible output**, which will print all output currently visible in the output viewer.
5. To print only selected items in the **Output** viewer, use the print **Selected output** option, and select the portions of the output that you want to print.

To print only one table or chart:

1. Click once on the item in the **Output** viewer, and select **File** > **Print**.
2. Under **Print Range**, choose **Selected output**, and click **OK** to print.

You may also print a selection of more than one tables or charts, by highlight the objects in the outline of output while pressing the **Control** key on the keyboard. Once the objects have been highlighted, proceed with printing.

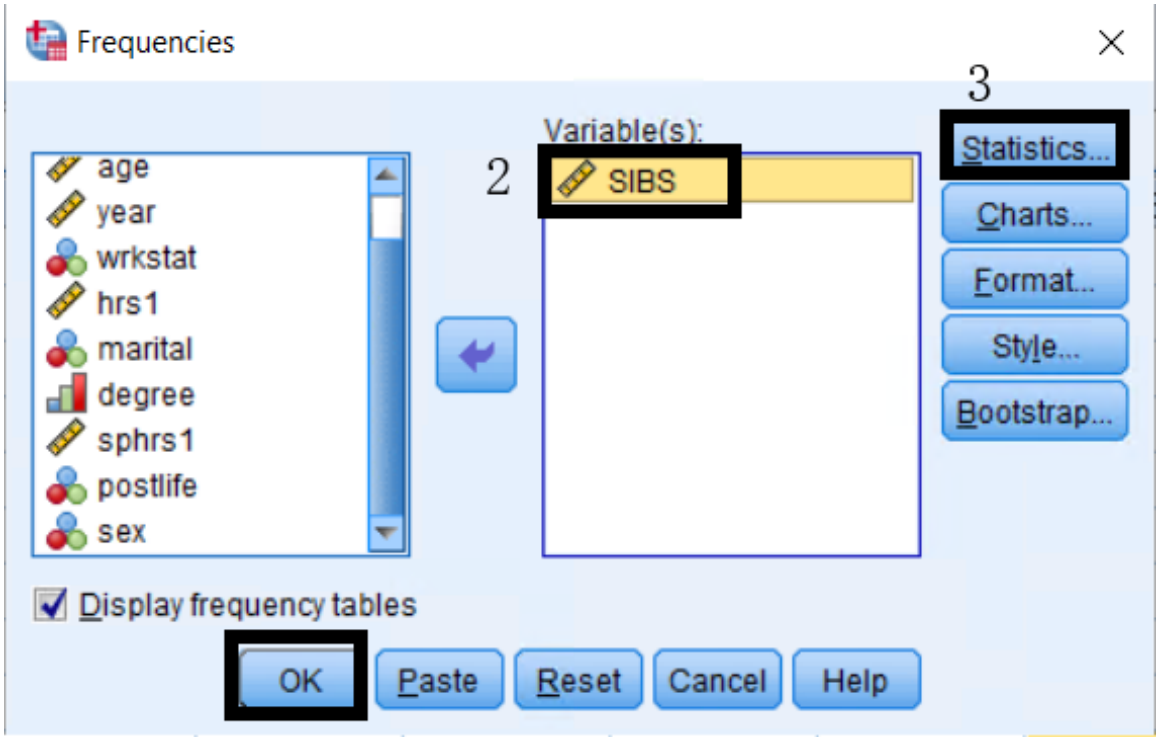
Exiting SPSS

Remember to save the data and output files before exiting the program. When you are ready to exit SPSS, select **File** > **Exit** in the **Menu bar**.

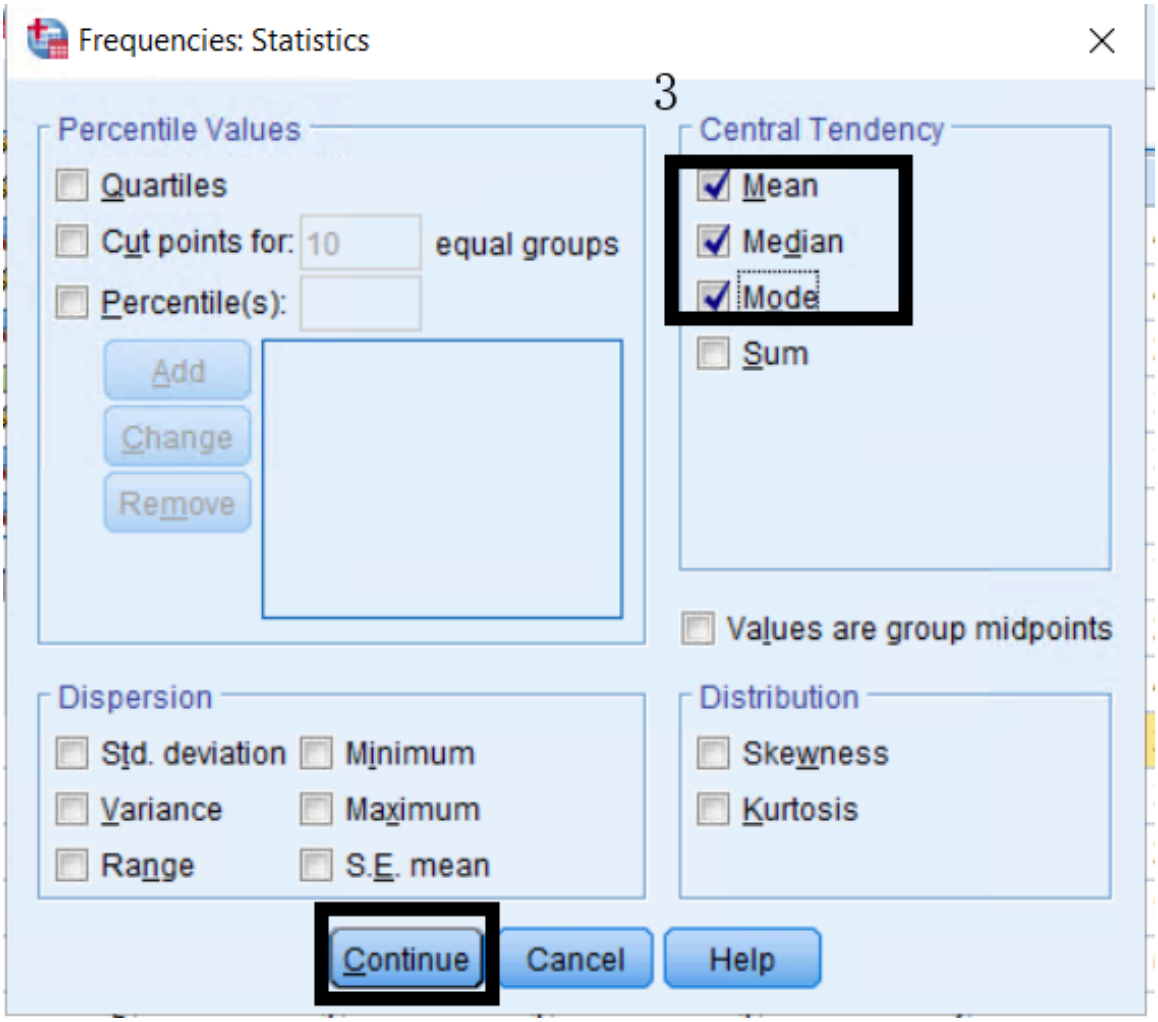
Appendix A: Answers for exercises

Exercise 1

1. In the **Menu bar**, select **Analyze** > **Descriptive Statistics** > **Frequencies**.
2. Move *sibs* to the **Variable(s)** box by double-clicking it or by using the arrow.



3. Click on the **Statistics** button, and select the statistics **Mean**, **Median**, **Mode**, **Range**, and **Standard Deviation**.



4. Click **Continue** and **OK** to finish.

Statistics

Number of brothers and sisters

N	Valid	2343
	Missing	5
Mean		3.58
Median		3.00
Mode		2
Std. Deviation		2.863
Range		25

Number of brothers and sisters

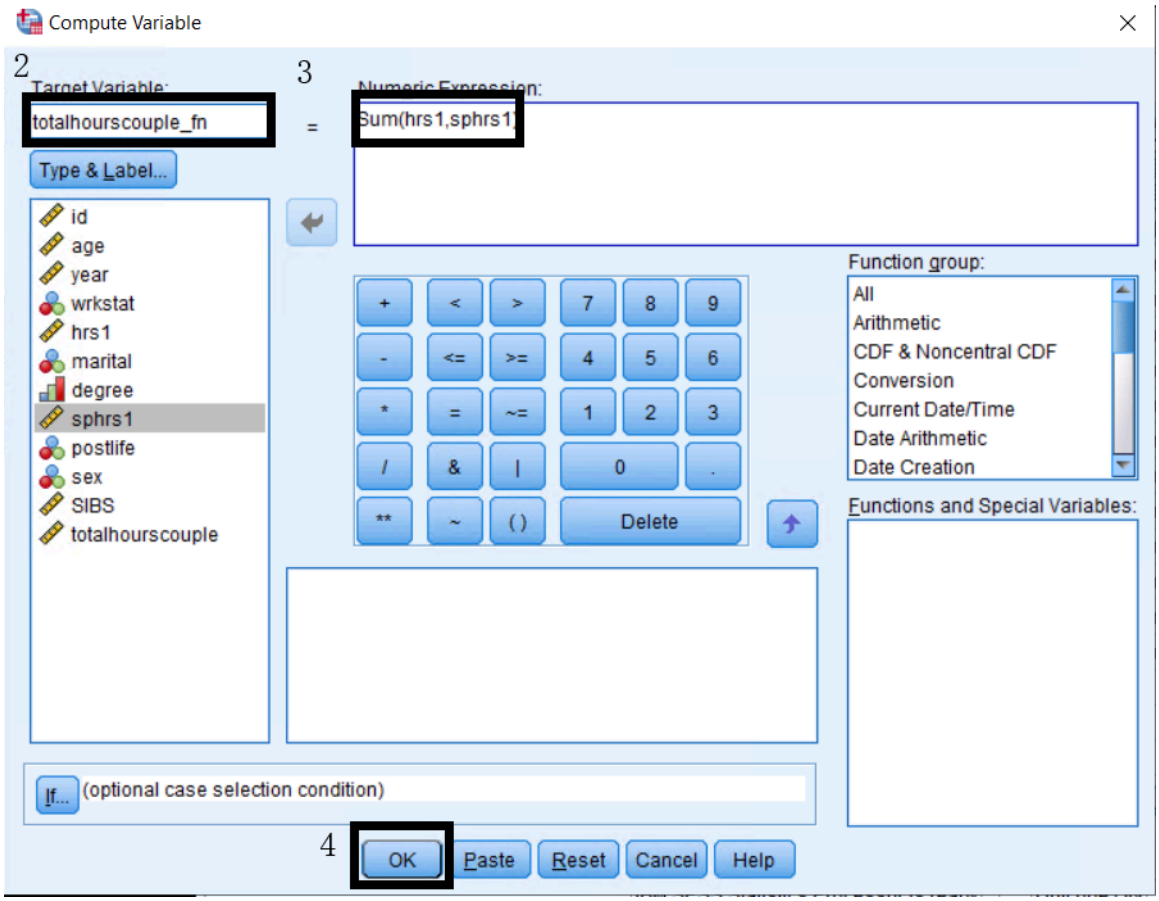
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	95	4.0	4.1	4.1
	1	472	20.1	20.1	24.2
	2	483	20.6	20.6	44.8
	3	384	16.4	16.4	61.2
	4	244	10.4	10.4	71.6
	5	176	7.5	7.5	79.1
	6	147	6.3	6.3	85.4
	7	125	5.3	5.3	90.7
	8	76	3.2	3.2	94.0
	9	44	1.9	1.9	95.9
	10	34	1.4	1.5	97.3
	11	19	.8	.8	98.1
	12	13	.6	.6	98.7
	13	14	.6	.6	99.3
	14	5	.2	.2	99.5
	15	2	.1	.1	99.6
	16	4	.2	.2	99.7
	17	1	.0	.0	99.8
	19	1	.0	.0	99.8
	21	1	.0	.0	99.9
	23	1	.0	.0	99.9
	24	1	.0	.0	100.0
	25	1	.0	.0	100.0
	Total	2343	99.8	100.0	
Missing	DK	4	.2		
	NA	1	.0		
	Total	5	.2		
Total		2348	100.0		

Results:

1. There are 2348 total cases.
2. There are 2343 valid cases and 5 missing cases.
3. The mean is 3.58, the median is 3.00, the mode is 2, the range is 25, and the standard deviation is 2.863.

Exercise 2

1. In the **Menu bar**, select **Transform > Compute Variable**.
2. Enter *totalHourscouple_fn* as the name for the new variable.



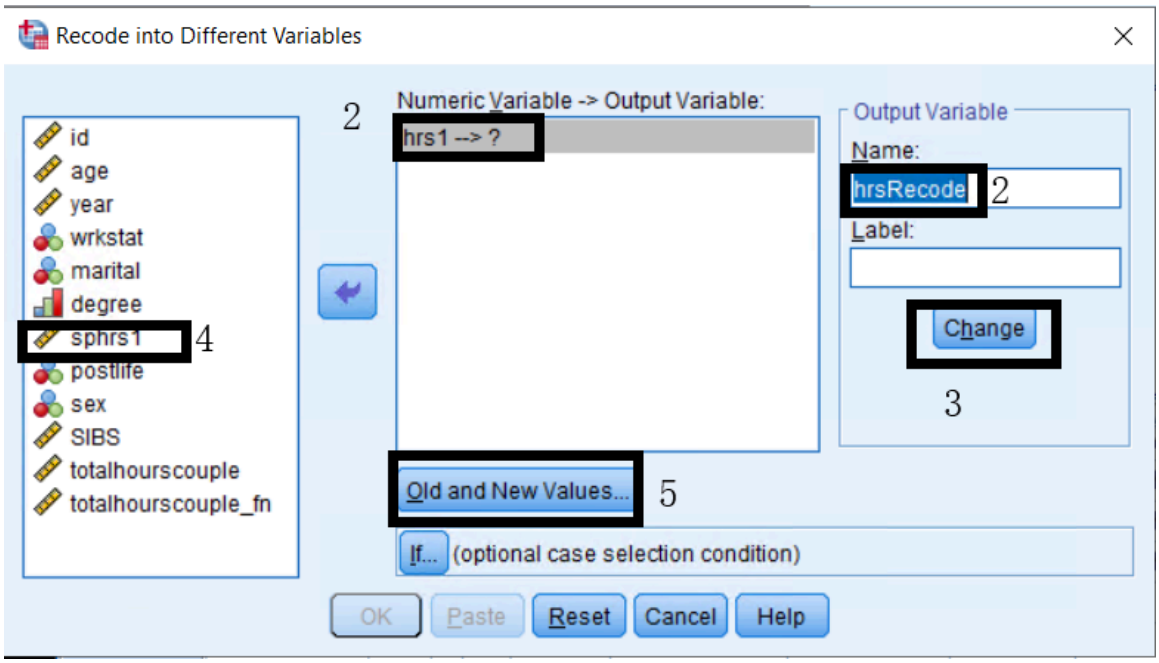
3. Type `Sum(hrs1, sphrs1)` into the **Numeric Expression** box or double-click `Sum(?,?)` from the functions list and replace the `?` with the variables.
4. Click **OK** to compute the variable.

Statistics

totalhourscouple_fn

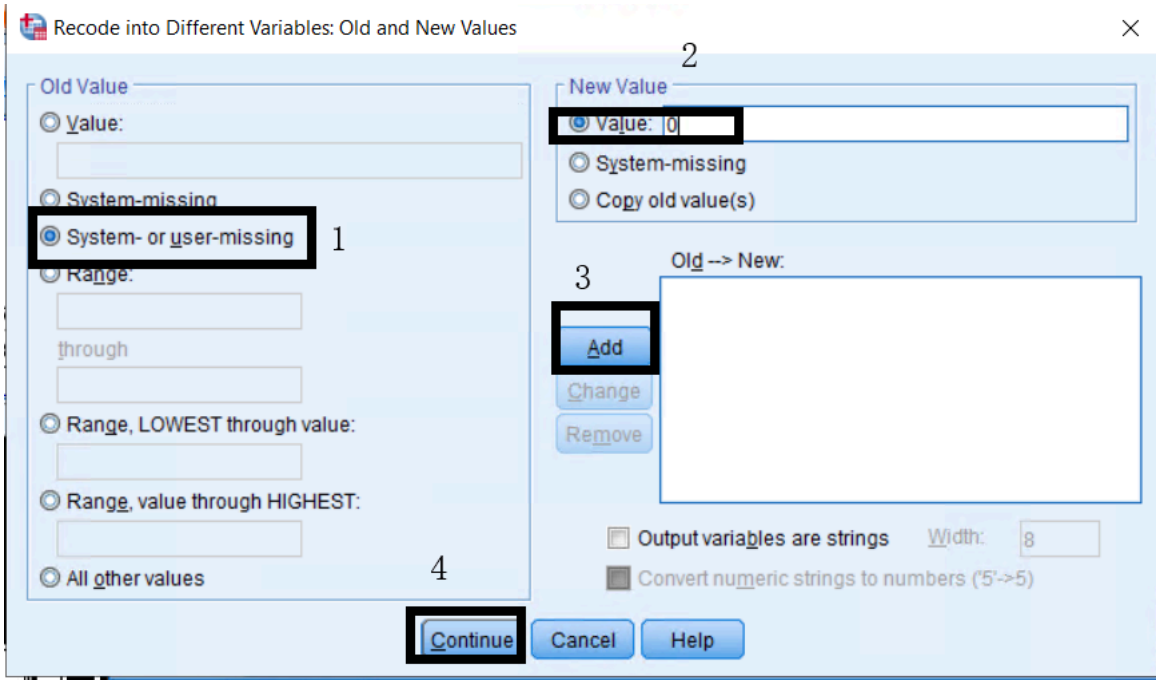
N	Valid	1566
	Missing	782

1. In the **Menu bar**, select **Transform** > **Recode into Different Variables**.
2. Move *hrs1* into the **Numeric Variable** box, and enter *hrsRecode* as the name for the **Output Variable**. You may also add "Respondent hours recoded" as the variable label.



3. Click the **Change** button after you have entered the name and label.
4. Repeat for *sphrs1*, using *sphrsRecode* as the new variable name and "Spouse hours recoded" as the variable label.
5. To specify the new values:

a. Click the **Old and New Values** button.
b. Select **System- or user-missing** for the **Old Value** with a **New Value** of 0, and click **Add**.



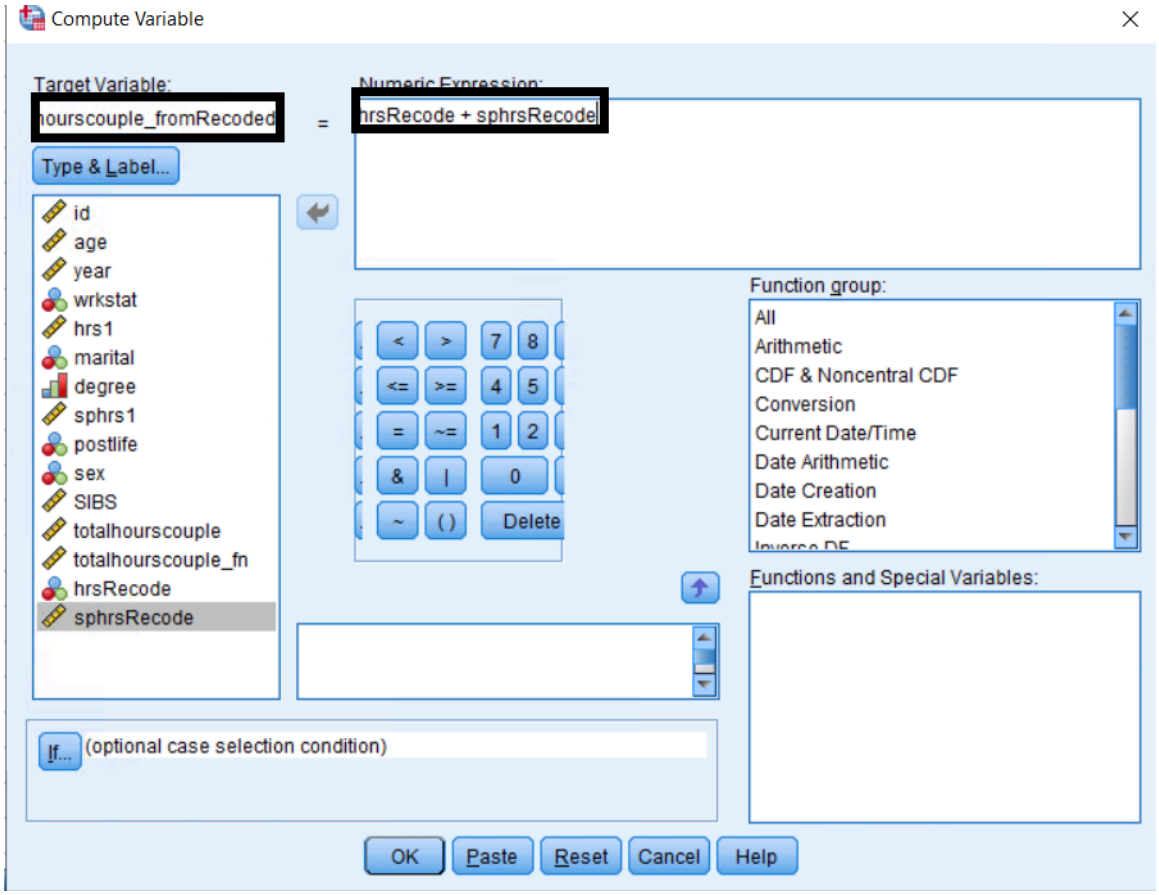
c. Select **all other values** for the **Old Value**, specify **Copy old value(s)** for the **New Value**, and click **Add**.
d. Click **Continue**, then **OK**.

Use the **Frequencies** procedure to check that there are no missing values for *hrsRecode* and *sphrsRecode* so that all cases will be included when computing the new variable.

Statistics

		hrsRecode	sphrsRecode
N	Valid	2348	2348
	Missing	0	0

1. In the **Menu bar**, select **Transform > Compute Variable**.
2. Enter *totalHourscouple_fromRecoded* as the name for the new variable.



3. Enter `hrsRecode + sphrsRecode` into the **Numeric Expression** box.
4. Click **OK** to compute the new variable.

Use the **Frequencies** procedure to see the distribution of the new variable *totalHourscouple_fromRecoded*.

Statistics

totalhourscouple_fromRecoded

N	Valid	2348
	Missing	0

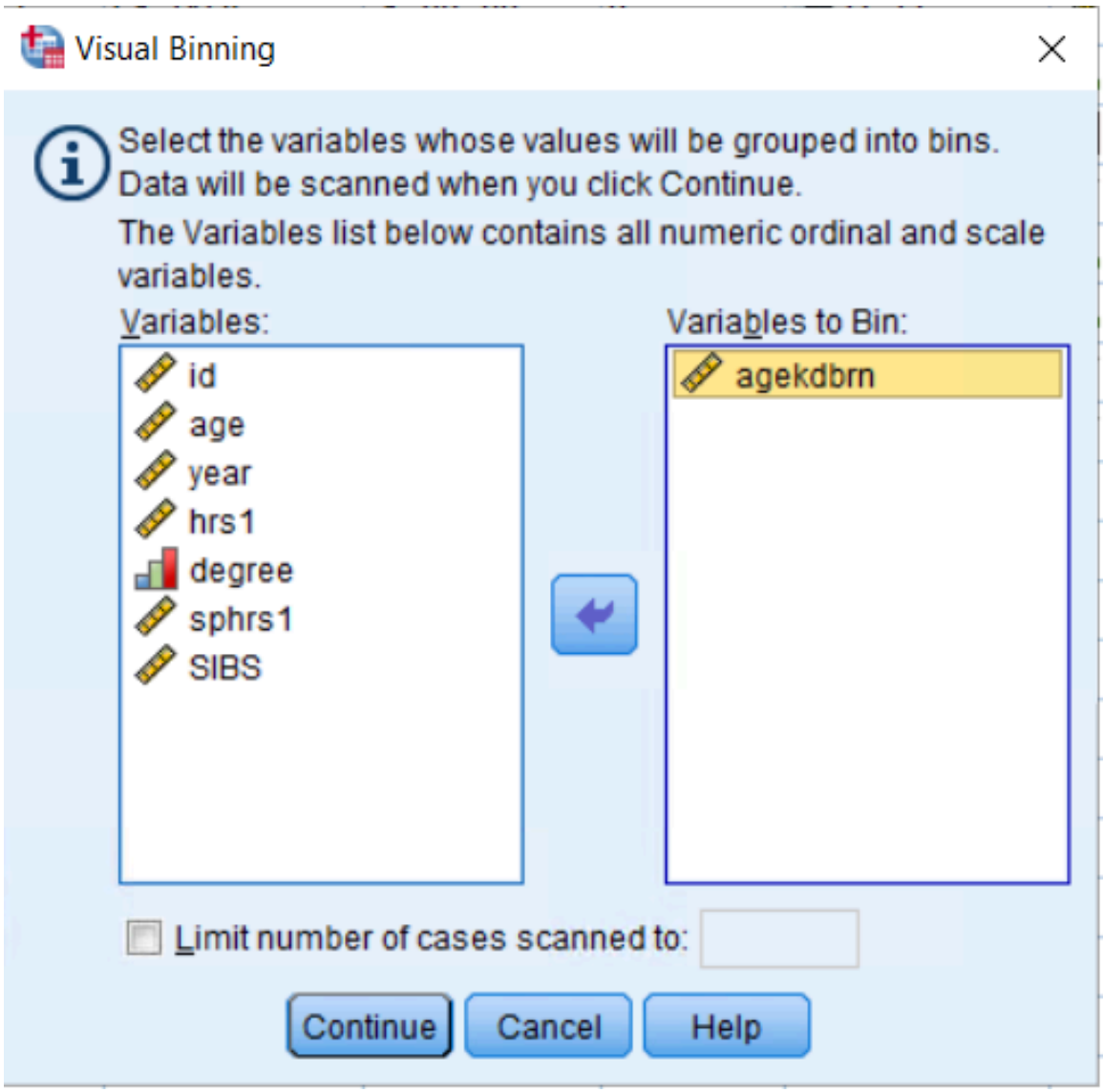
Recall from the exercise performed in class, there are 452 valid cases and 1,896 missing cases for the variable *totalHourscouple* which was computed using an arithmetic operator (`hrs1 + sphrs1`). As such, SPSS ignored any cases with missing values in any of the operand variables.

The new variable *totalHourscouple_fn*, computed with the **Sum** function (Sum(hrs1, sphrs1)), has 782 missing cases, which means that there are 782 cases with missing values for both variables.

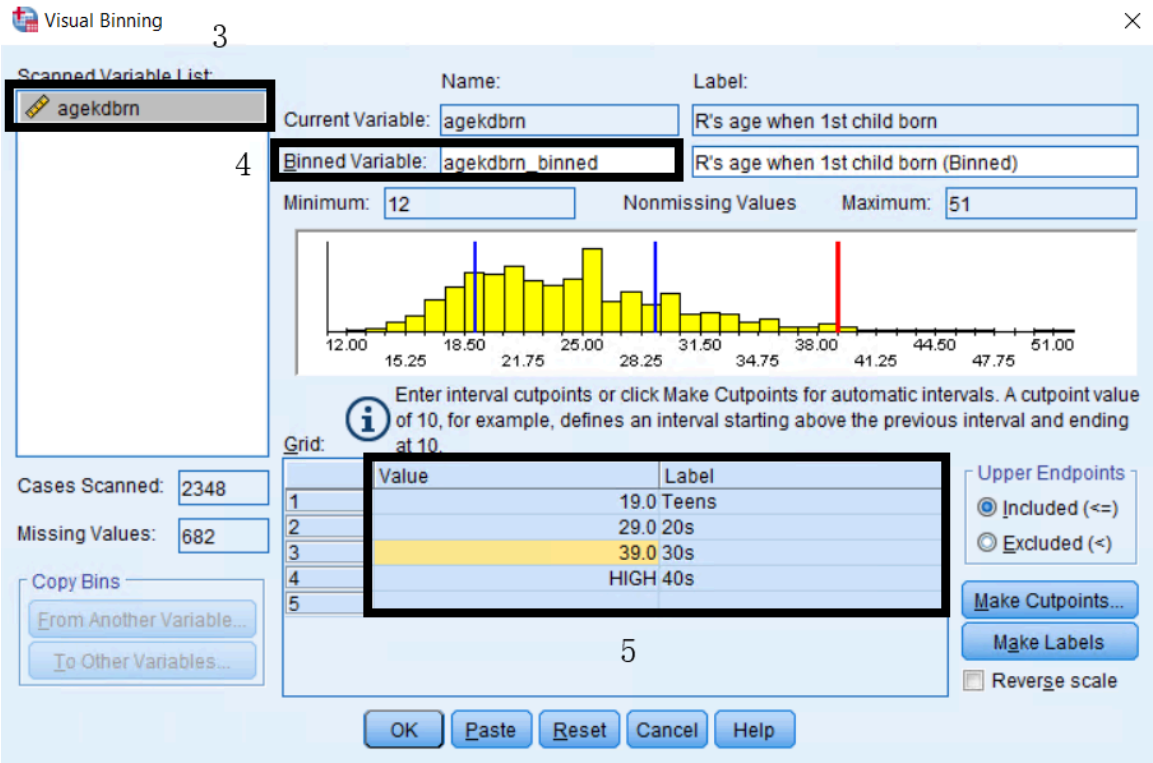
The new variable *totalHourscouple_fromRecoded* has 2,348 valid cases and 0 missing cases because you recoded all missing values for both variables into 0. Thus, it does not make any difference whether you use an arithmetic operator (i.e., +) or sum function.

Exercise 3

1. In the **Menu bar**, select **Transform** > **Visual Binning**.
2. Move *agekdbrn* to the **Variables to Bin** list, and click **Continue**.



3. Click on the variable *agekdbrn* in the **Scanned Variable List** box. You will now see a bar graph for this variable.



4. Type *agekdbrn_binned* as the name for the new variable in the **Binned Variable** box and edit the variable label if needed.
5. Manually enter the following into the **Value** and **Label** columns of the **Grid**:

Value	Label
19	Teens
29	20s
39	30s
High	40s

Note: You will get the same results if you select **Make Cutpoints** and enter 19 as the first cutpoint location with 3 as the number of cutpoints. 6. Click **OK** to finish.

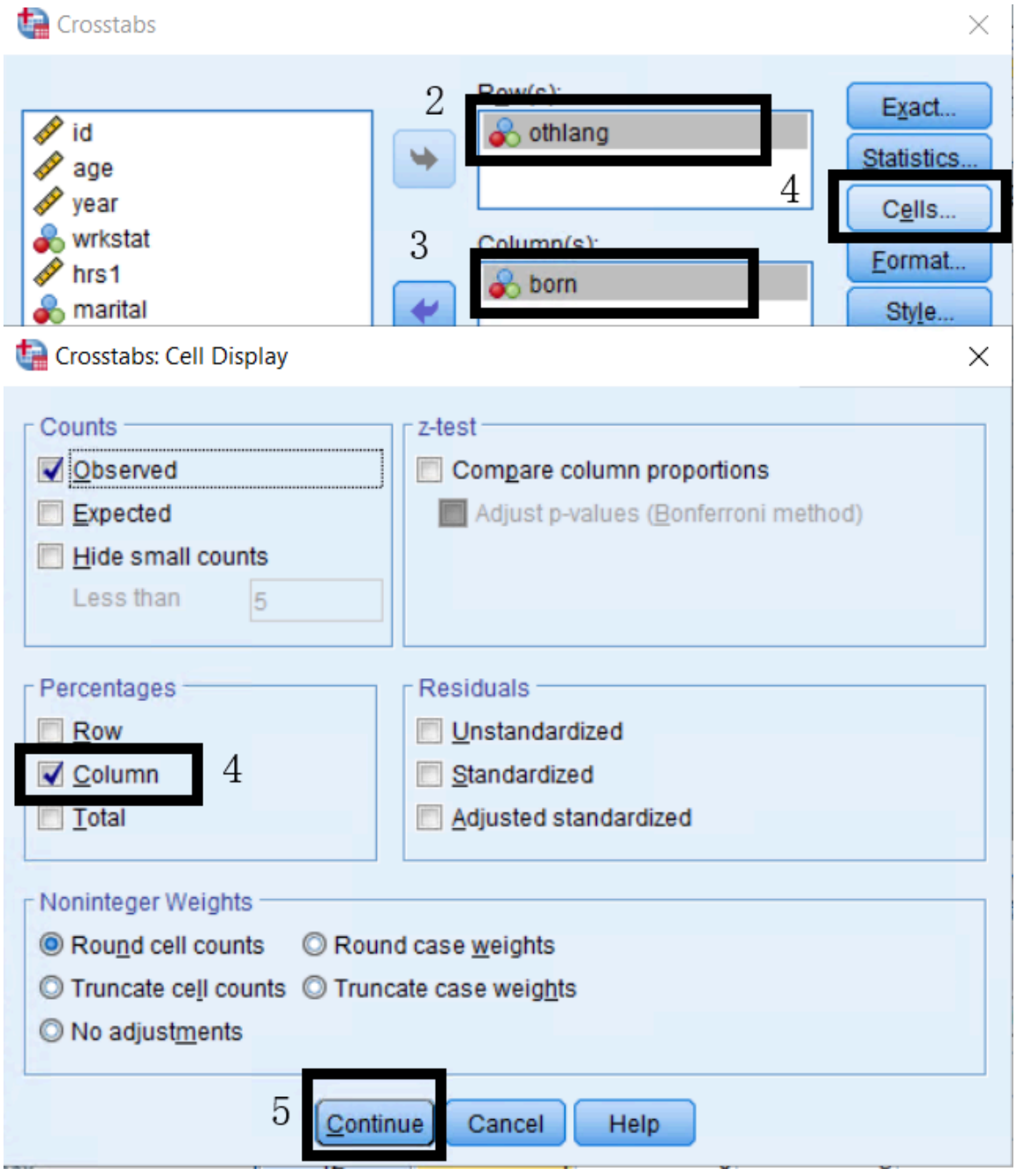
Generate a frequency table to confirm that the new variable was created:

R's age when 1st child born (Binned)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Teens	361	15.4	21.7	21.7
	20s	993	42.3	59.6	81.3
	30s	285	12.1	17.1	98.4
	40s	27	1.1	1.6	100.0
	Total	1666	71.0	100.0	
Missing	IAP	663	28.2		
	DK	10	.4		
	NA	9	.4		
	Total	682	29.0		
Total		2348	100.0		

Exercise 4

1. In the **Menu bar**, select **Analyze > Descriptive Statistics > Crosstabs**.
2. Move the dependent variable *othlang* into **Row(s)**.



3. Move the independent variable *born* into **Column(s)**.
4. Click on **Cells** and select **Column** for percentages.
5. Click on **Continue** and **OK**.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Can R speak language other than English/Spanish * Was R born in this country	2345	99.9%	3	0.1%	2348	100.0%

Can R speak language other than English/Spanish * Was R born in this country Crosstabulation

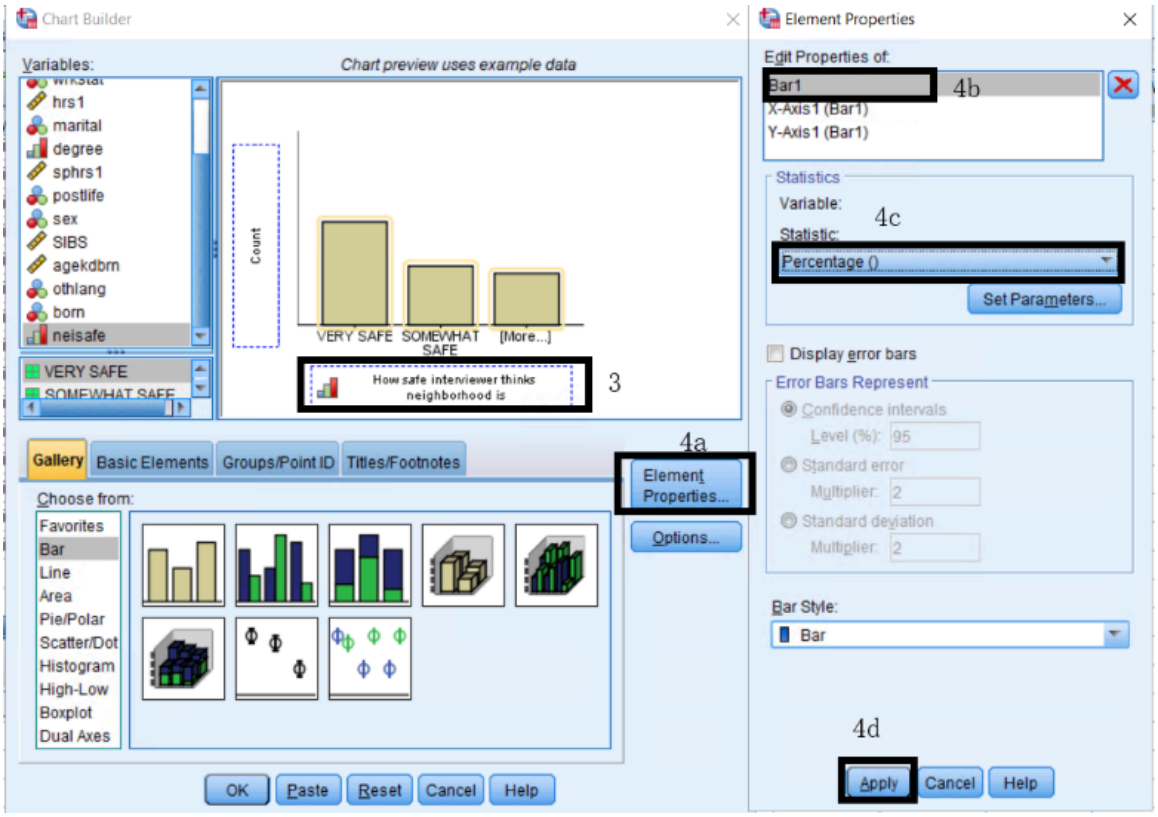
			Was R born in this country		
			YES	NO	Total
Can R speak language other than English/Spanish	YES	Count	506	217	723
		% within Was R born in this country	24.8%	71.9%	30.8%
	NO	Count	1537	85	1622
		% within Was R born in this country	75.2%	28.1%	69.2%
Total		Count	2043	302	2345
		% within Was R born in this country	100.0%	100.0%	100.0%

Interpretation of the Crosstab:

1. Number of valid cases: 2,345 cases are included in the crosstabs table
2. Number of missing cases: 3 cases do not have a valid value for at least one of the variables
3. 24.8.
4. Combining native- and foreign-born, 30.8.

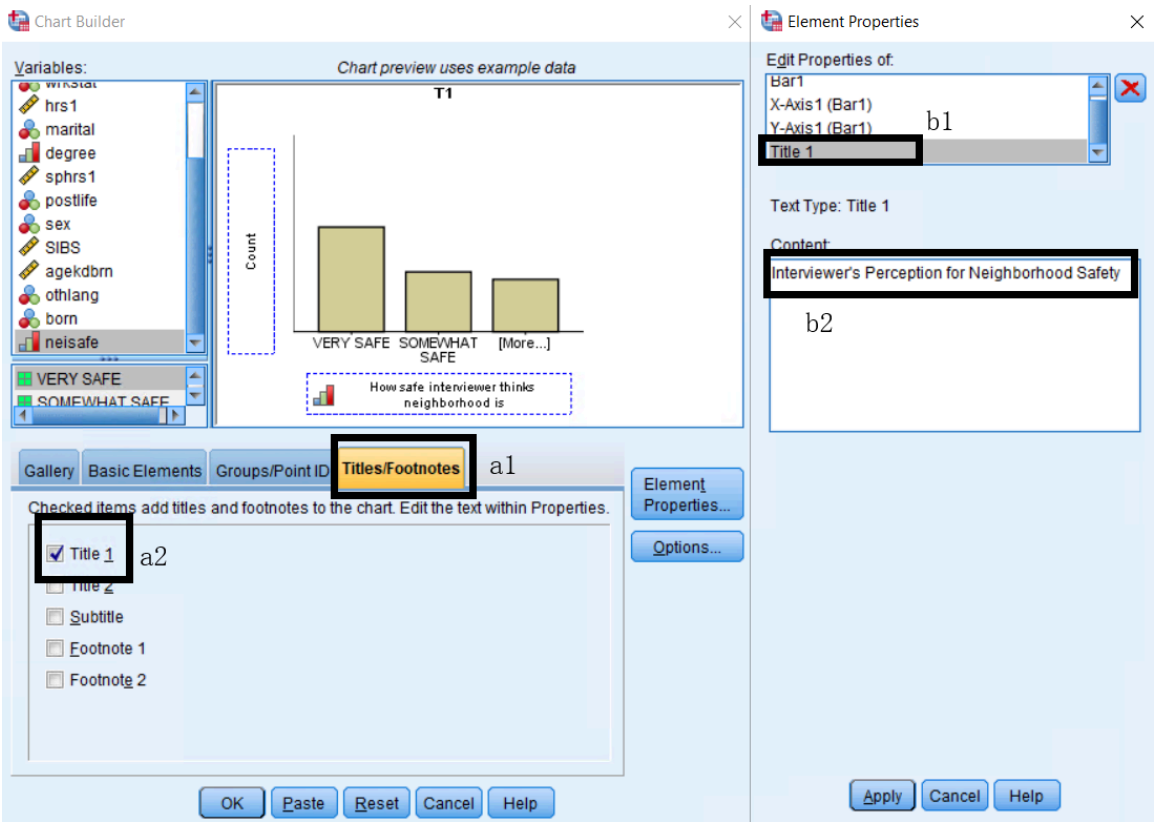
Exercise 5

1. In the **Menu bar**, select **Graphs** > **Chart Builder**.
2. In the **Chart Builder**, click the **Gallery** tab, and select **Bar** from the list.
3. Drag the **Simple Bar** icon onto the canvas and the variable *neisafe* to the **x-axis** drop zone.

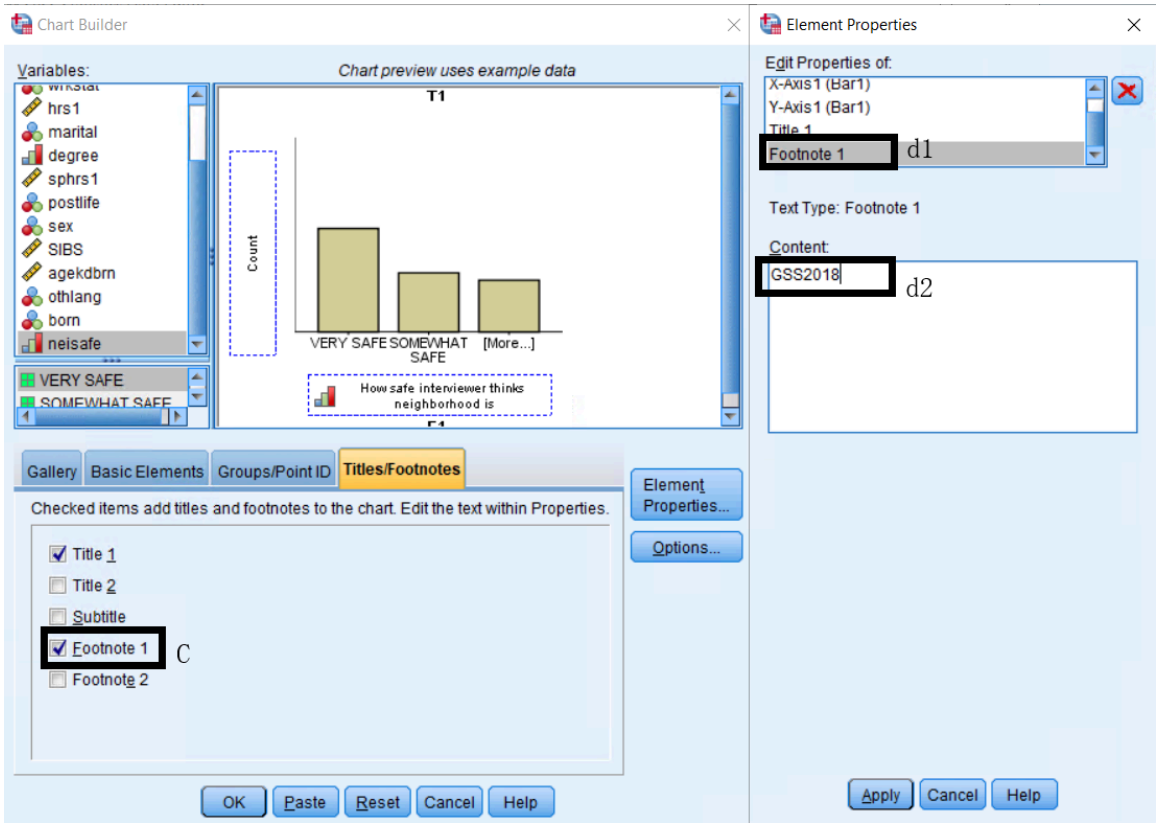


4. Click **Element Properties**, select **Bar1**, specify **Percentage ()** as the statistic, and click **Apply**.
5. To add a title and footnote:

a. In the **Chart Builder** dialog box, click the **Titles/Footnotes** tab, and select **Title 1**.



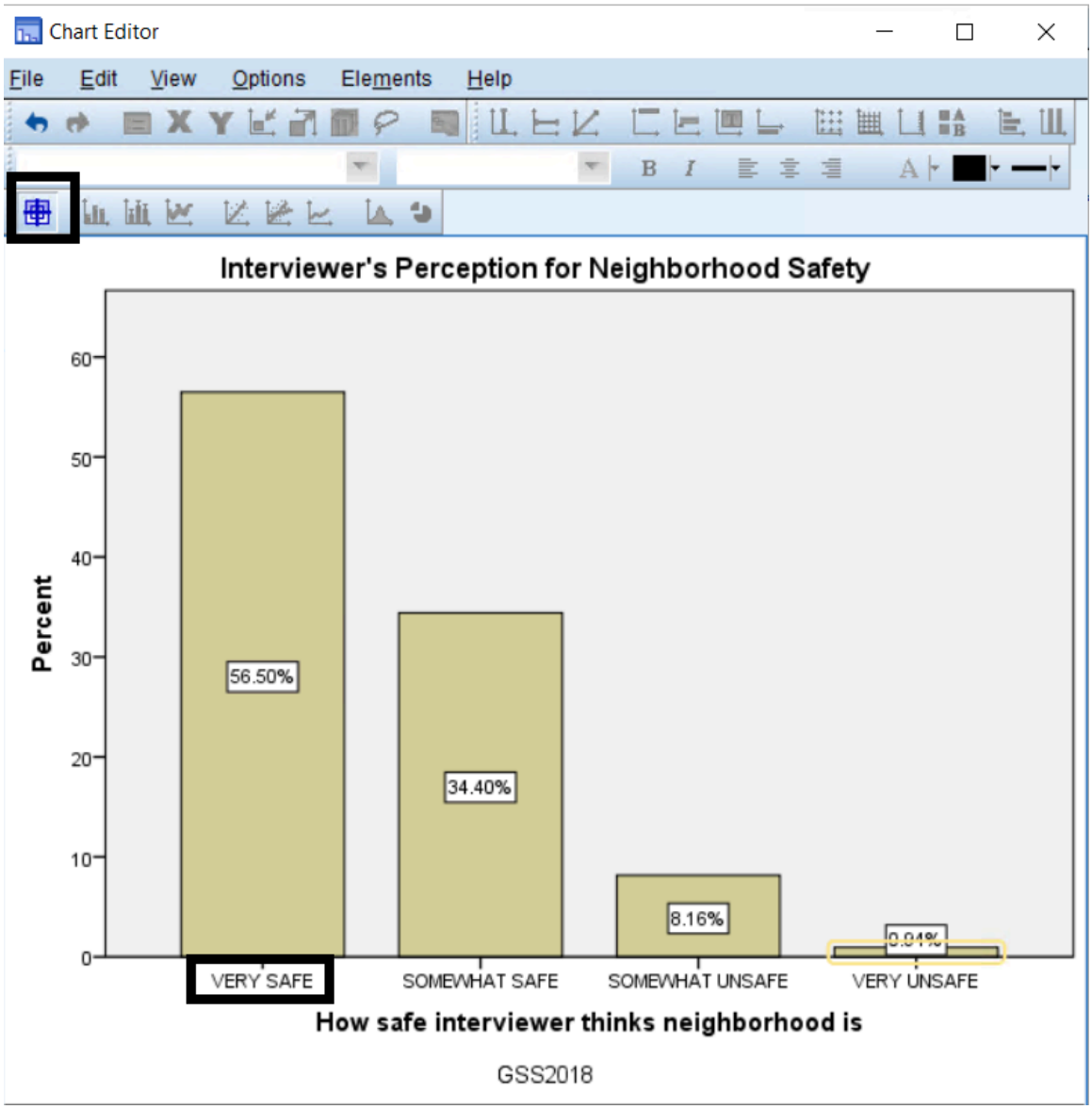
b. In **Element Properties**, select **Title 1**, type "Belief that English Unites All Americans", and click **Apply**.
c. In the **Chart Builder** dialog box, and select **Footnote 1**.



d. In **Element Properties**, select **Footnote 1**, type "GSS 2018", and click **Apply**.

Once finished adding elements and editing the features of the chart, click **OK** to create the chart.

Open the **Chart Editor** by double-clicking on the chart or right-clicking the chart and selecting **Edit Content > In Separate Window**. Add data values by clicking the **Data Labels Mode** icon in the **Toolbar** or selecting **Elements > Data Labels Mode** in the **Menu bar**. Click on the bar to add the data value.

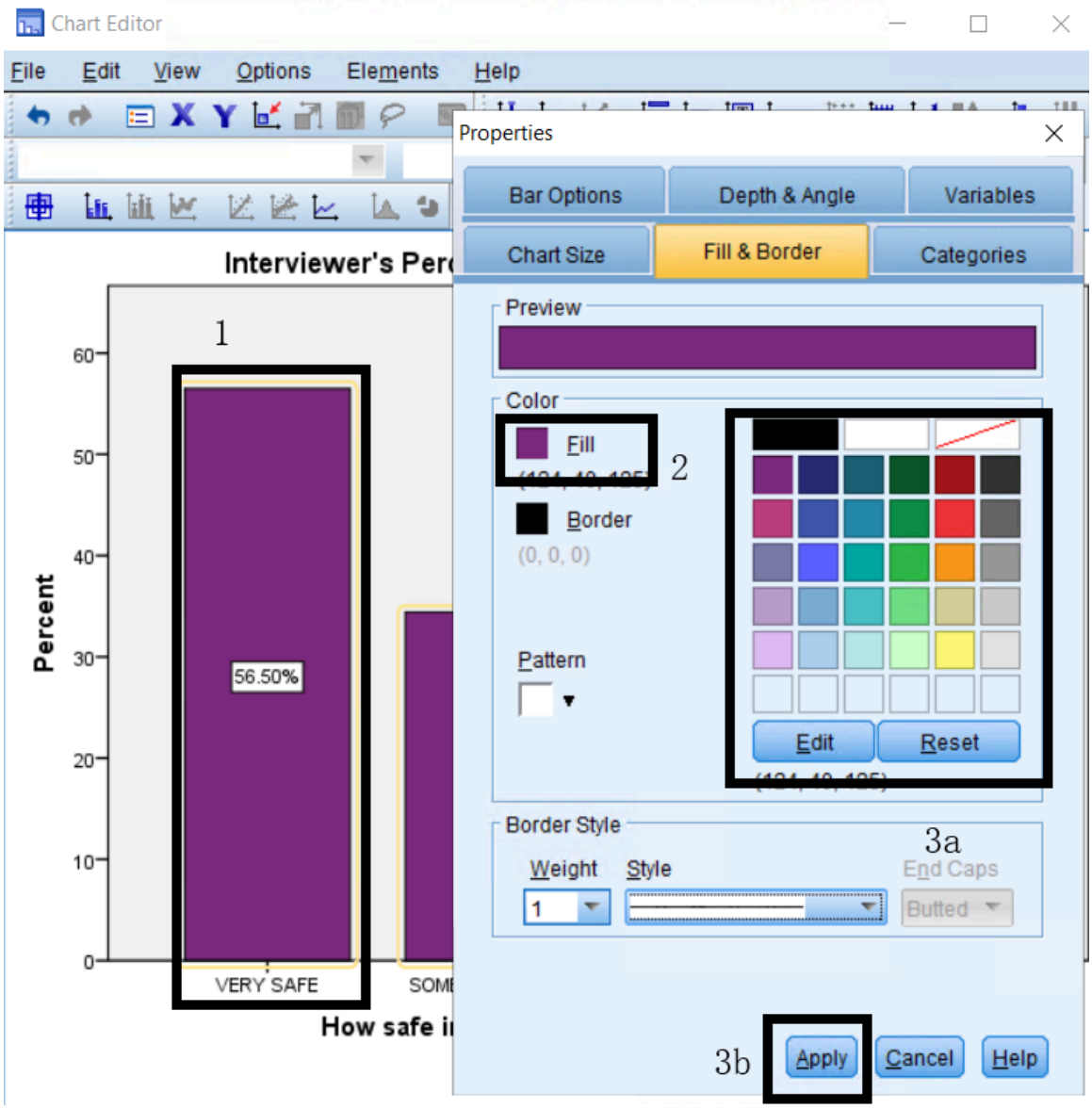


When done editing, exit the window.

From the output, you can see that 56.50

To change the color and width of the bars:

1. In the **Chart Editor**, double-click any bar. This will open a **Properties** dialog box.
2. Select the **Fill & Border** tab, and click on the color box next to **Fill**.



3. Choose your desired color, and click **Apply**.
4. Select the **Bar Options** tab, move the **Bars** slider to the desired width, and click **Apply**.

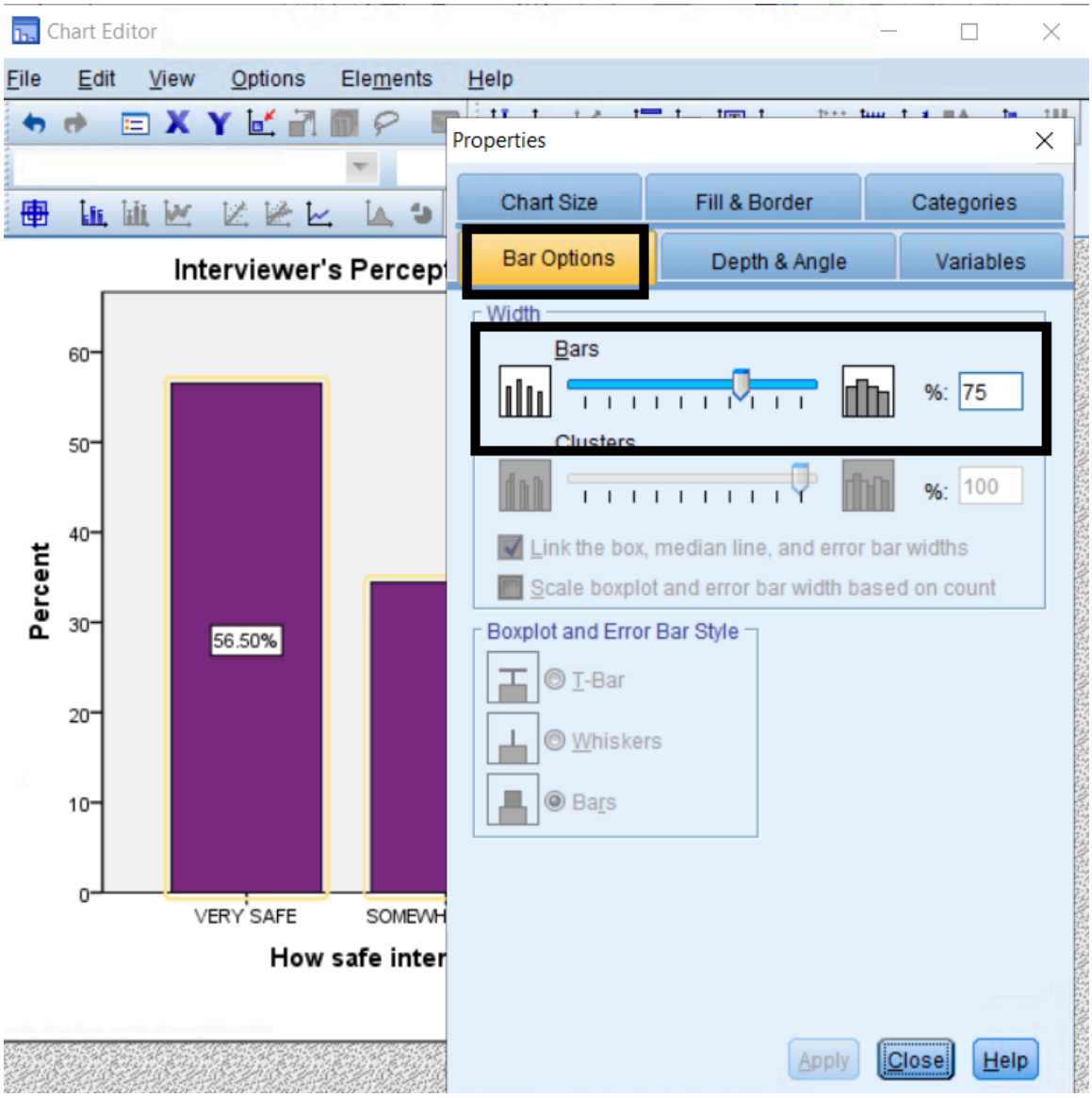


Chart Editor
File
Edit
View
Options
Elements
Help
Interviewer's Percept
Percent
60
50
40
30
20
10
0
56.50%
VERY SAFE
SOMEWH
How safe inter
Properties
Chart Size
Fill & Border
Categories
Bar Options
Depth & Angle
Variables
Width
Bars
%: 75
Clusters
%: 100
Link the box, median line, and error bar widths
Scale boxplot and error bar width based on count
Boxplot and Error Bar Style
T-Bar
Whiskers
Bars
Apply
Close
Help