

# Unit Two: Descriptive Biostatistics

## Activity 2: Exercises and using SPSS for descriptive statistics

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## Exercise 1

Computer Sales (n = 12 salespeople)

Original Data: 3, 10, 2, 5, 9, 8, 7, 12, 10, 0, 4, 6

Compute the mean, median, mode, quartiles.

First order the data:

0, 2, 3, 4, 5, 6, 7, 8, 9, 10, 10, 12

$$\sum X_i = 76$$

$$\bar{X} = 76 / 12 = 6.33 \text{ computers sold}$$

Median = 6.5 computers

Mode = 10 computers

$Q_1 = 3.5$  computers,  $Q_3 = 9.5$  computers

## Exercise 2

**Data (n=16):**

1, 1, 2, 2, 2, 2, 3, 3, 4,  
4, 5, 5, 6, 7, 8, 10

Compute the mean,  
median, mode,  
quartiles.

**Answer.**

1 1 2 2 | 2 2 3 3 | 4 4 5  
5 | 6 7 8 10

$$\text{Mean} = 65/16 = 4.06$$

$$\text{Median} = 3.5$$

$$\text{Mode} = 2$$

$$Q_1 = 2$$

$$Q_2 = \text{Median} = 3.5$$

$$Q_3 = 5.5$$

## Exercise 3

**Data – number of absences (n=13) :**

0, 5, 3, 2, 1, 2, 4, 3, 1, 0, 0, 6, 12

Compute the mean, median, mode, quartiles.

**Answer.** First order the data:

0, 0, 0, | 1, 1, 2, 2, 3, 3, 4, | 5, 6, 12

Mean =  $39/13 = 3.0$   
absences

Median = 2 absences

Mode = 0 absences

$Q_1 = .5$  absences

$Q_3 = 4.5$  absences

## Exercise 4

Data: Reading Levels of  
16 eighth graders.

5, 6, 6, 6, 5, 8, 7, 7, 7, 8,  
10, 9, 9, 9, 9, 9

**Answer.** First, order  
the data:

5 5 6 6 | 6 7 7 7 | 8 8 9 9 |  
9 9 9 10

Sum=120.

Mean=  $120/16 = 7.5$  This is  
the average reading level of  
the 16 students.

Median =  $Q_2 = 7.5$

$Q_1 = 6$ ,  $Q_3 = 9$

Mode = 9

# Inter-Quartile Range (IQR)

- $IQR = Q_3 - Q_1$
  - Example ( $n = 15$ ):
  - **0, 0, 2, 3, 4, 7, 9, 12, 17, 18, 20, 22, 45, 56, 98**
  - $Q_1 = 3, Q_3 = 22$
- $IQR = 22 - 3 = 19$  (Range = 98)

# **Step by Step: Running Descriptive Statistics in SPSS Statistics**

# 1. STEP: Load Data into SPSS

- Commence by launching SPSS and loading your dataset, which should encompass the variables of interest – a categorical independent variable (if any) and the continuous dependent variable. If your data is not already in SPSS format, you can import it by navigating to **File > Open > Data** and selecting your data file.





	Name	Type
1	pid	Numeric
2	age	Numeric
3	gender	Numeric
4	ethnicity	Numeric
5	education	Numeric
6	marital	Numeric
7	employment	Numeric
8	finc	Numeric
9	pedu	Numeric
10	residentialar...	Numeric
11	asthma	Numeric
12	diabetes	Numeric
13	highbp	Numeric

Reports

**Descriptive Statistics**

Bayesian Statistics

Tables

Compare Means

General Linear Model

Generalized Linear Models

Mixed Models

Correlate

Regression

Loglinear

Neural Networks

Classify

Dimension Reduction

Scale

Nonparametric Tests

123 Frequencies...

Pa Descriptives...

Explore...

Crosstabs...

TURF Analysis

Ratio...

P-P Plots...

Q-Q Plots...

	Values
	None
	None
	{1, Male}...
	{1, White}...
	{1, High sch...
	{1, Cohabiti...
	{1, Employe...
	None
	None
	ation (continuous years)
	None
	ea
	{0, Metropol...
	diagnosed by doctor
	{0, No}...
	diagnosed by doctor
	{0, No}...
	od pressure diagnosed by doctor
	{0, No}...

## 2. STEP: Access the Analyze Menu

- In the top menu, locate and click on “**Analyze.**” Within the “Analyze” menu, navigate to “**Descriptive Statistics**” and choose “**Descriptives.**” **Analyze > Descriptive Statistics > Descriptives**

## 3. STEP: Specify Variables



- Upon selecting “Descriptives,” a dialog box will appear. Transfer the continuous variable you wish to analyze into the “Variable(s)” box.



-  unique individual identificatio...
-  gender [gender]
-  ethnic group [ethnicity]
-  level of education (collapsed)...
-  marital and cohabitation statu...
-  employment status (collapse...
-  highest parental education (c...
-  type of residential area [resid...
-  whether has asthma diagnos...
-  whether has diabetes diagno...
-  whether has high blood pres...
-  whether has cancer diagnos...
-  whether has emotional or psy...
-  whether has depression diag...
-  whether has bipolar diagnos...
-  whether has schizophrenia di...
-  whether has anxiety diagnos...
-  whether has phobias diagno...
-  whether has alcohol problem...
-  whether has other drug probl...
-  whether has ocd diagnosed ...
-  whether has ptsd diagnosed ...
-  depressive symptoms severity



Variable(s):

-  age of individual [age]
-  total family income in 2018 [finc]

- 
- 
- 

Save standardized values as variables

- 
- 
- 
- 
-

## 4. STEP: Define Options

- Click on the “**Options**” button within the “**Descriptives**” dialog box to access additional settings. Here, you can request various descriptive statistics such as mean, median, mode, standard deviation, and more. Adjust the settings according to your analytical requirements.

Descriptives



- unique individual identificatio...
- gender [gender]
- ethnic group [ethnicity]
- level of education (collapsed)...
- marital and cohabitation statu...
- employment status (collapse...
- highest parental education (c...
- type of residential area [resid...
- whether has asthma diagnos...
- whether has diabetes diagno...
- whether has high blood pres...
- whether has cancer diagnos...
- whether has emotional or psy...
- whether has depression diag...
- whether has bipolar diagnos...
- whether has schizophrenia di...
- whether has anxiety diagnos...
- whether has phobias diagno...
- whether has alcohol probl...
- whether has other drug probl...
- whether has ocd diagnosed ...
- whether has ptsd diagnosed ...
- depressive symptoms severity

Save standardized values as variables

Variable(s):

- age of individual [age]
- total family income in 2018 [finc]

Options...

Style...

Bootstrap...



Descriptives: Options



Mean  Sum

Dispersion

Std. deviation  Minimum  
 Variance  Maximum  
 Range  S.E. mean

Characterize Posterior Distribution

Kurtosis  Skewness

Display Order

Variable list  
 Alphabetic  
 Ascending means  
 Descending means

Continue

Cancel

Help

OK

Paste

Reset

Cancel

Help

## 5. STEP: Generate Descriptive Statistics:

Once you have specified your variables and chosen options, click the “**OK**” button to execute the analysis. SPSS will generate a comprehensive output, including the requested descriptive statistics for your dataset.

