

# How can I calculate skewness and kurtosis in SPSS?

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## RECOMMENDED CITATION

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PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=127099>

To calculate skewness and kurtosis in SPSS, follow these steps:

1. Open your data set in SPSS.
2. Go to the "Analyze" menu and select "Descriptive Statistics".
3. Click on "Explore" from the drop-down menu.
4. In the "Explore" dialogue box, choose the variable(s) for which you want to calculate skewness and kurtosis and move them to the "Dependent List" box.
5. Click on the "Plots" button and check the box for "Histogram" and "Normality plots with tests".
6. Click on the "Statistics" button and check the boxes for "Skewness" and "Kurtosis" under the "Descriptives" section.
7. Click "Continue" to return to the "Explore" dialogue box.
8. Click "OK" to run the analysis.
9. The output will include a table with the skewness and kurtosis values for the selected variable(s) as well as a histogram and normality plots.

Skewness measures the asymmetry of a distribution, while kurtosis measures the peakedness or flatness of a distribution. These values can help you determine if your data is normally distributed or if it has a non-normal distribution. By following these steps, you can easily calculate skewness and kurtosis in SPSS for any variable in your data set.

## Calculate Skewness & Kurtosis in SPSS

**In statistics, we use skewness and kurtosis to measure the shape of a distribution.**

**Skewness measures the asymmetry of a distribution. This value can be positive or negative.**

**A negative skew indicates that the tail is on the left side**

of the distribution, which extends towards more negative values. A positive skew indicates that the tail is on the right side of the distribution, which extends towards more positive values. A value of zero indicates that there is no skewness in the distribution at all, meaning the distribution is perfectly symmetrical.

Kurtosis is a measure of whether or not a distribution is heavy-tailed or light-tailed relative to a normal distribution.

The kurtosis of a normal distribution is 0. If a given distribution has a kurtosis less than 0, then it tends to produce fewer and less extreme outliers than the normal distribution. If a given distribution has a kurtosis greater than 0, then it tends to produce more outliers than the normal distribution.

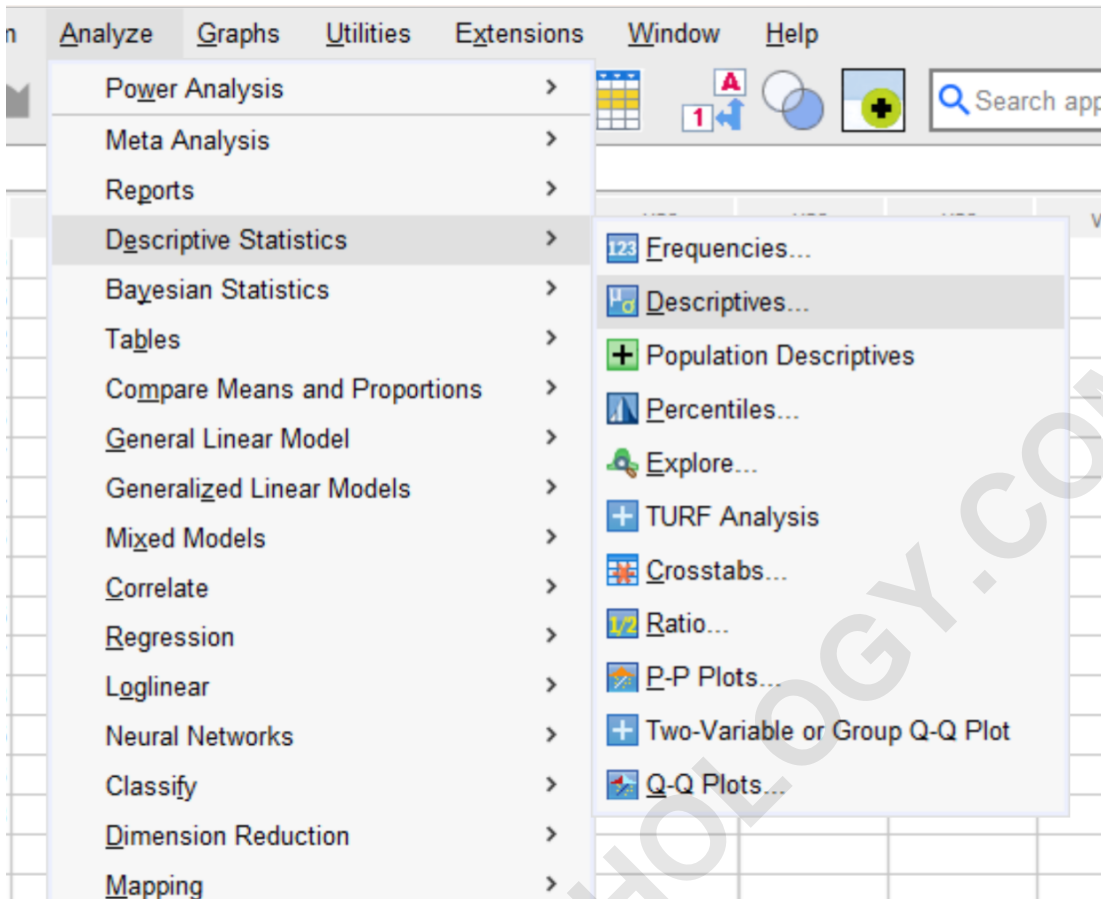
The following example shows how to calculate skewness and kurtosis for a given dataset in SPSS.

**Example: How to Calculate Skewness & Kurtosis in SPSS**

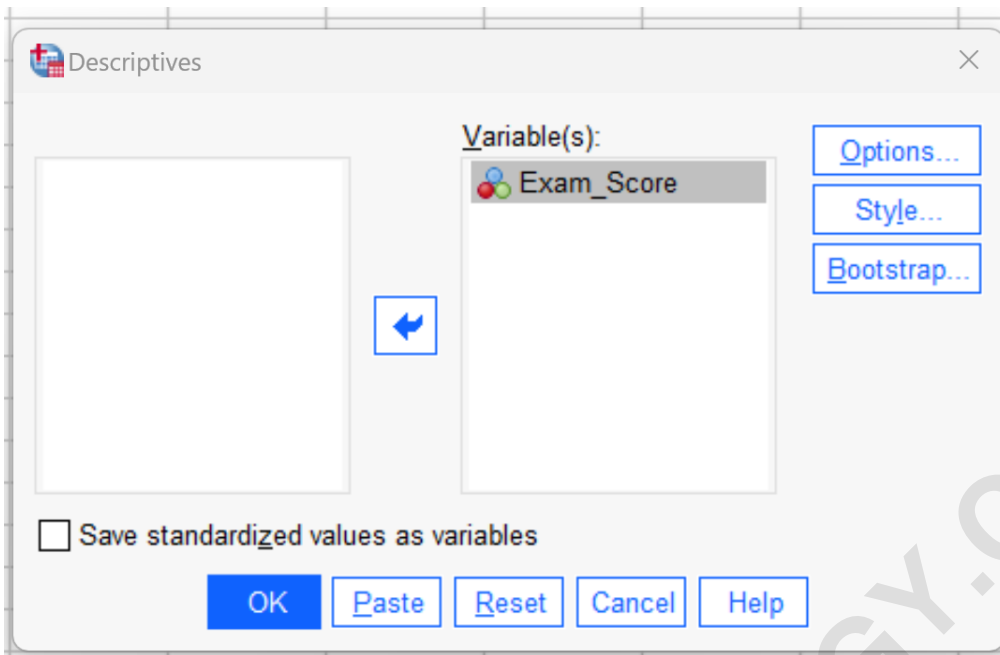
Suppose we have the following dataset in SPSS that shows the exam scores received by various students in some class:

	Student_ID	Exam_Score	var	var
1	1	88		
2	2	95		
3	3	92		
4	4	97		
5	5	96		
6	6	97		
7	7	94		
8	8	86		
9	9	91		
10	10	95		
11	11	97		
12	12	88		
13	13	85		
14	14	76		
15	15	68		
16				
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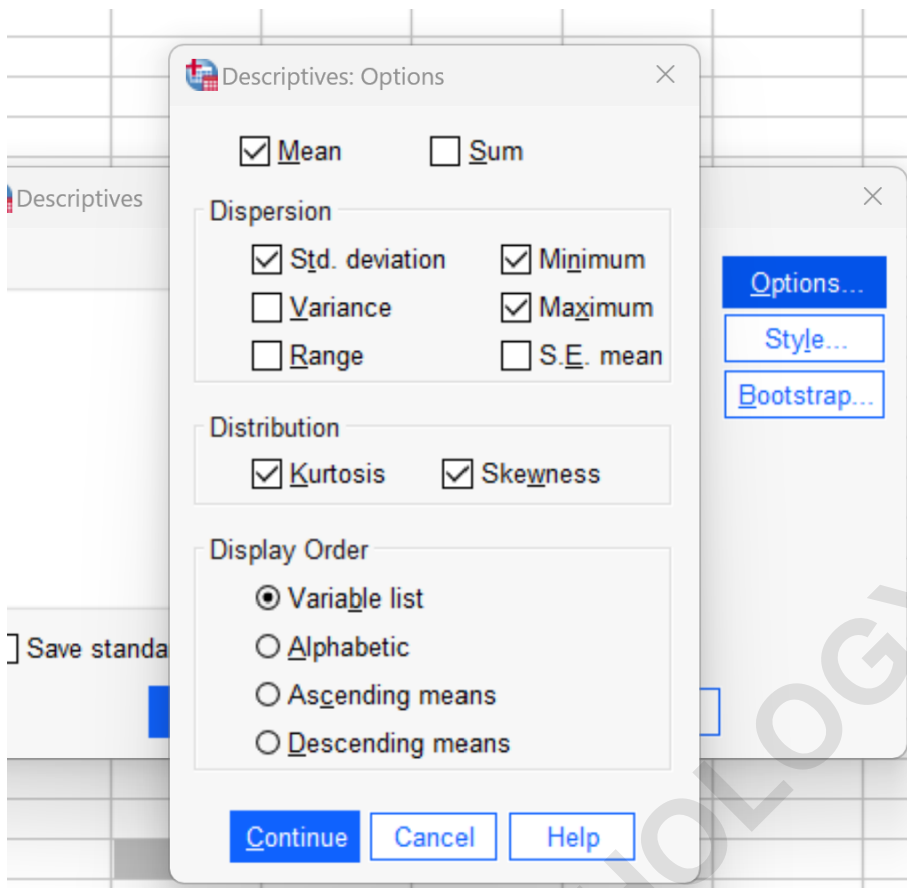
**To calculate the skewness and kurtosis for the distribution of exam scores, click the Analyze tab, then click Descriptive Statistics, then click Descriptives:**



**In the new window that appears, drag Exam\_Score to the Variables panel:**



**Then click the Options button. In the new window that appears, check the boxes next to Kurtosis and Skewness:**



Then click **Continue**. Then click **OK**.

The following output will appear:

→ **Descriptives**

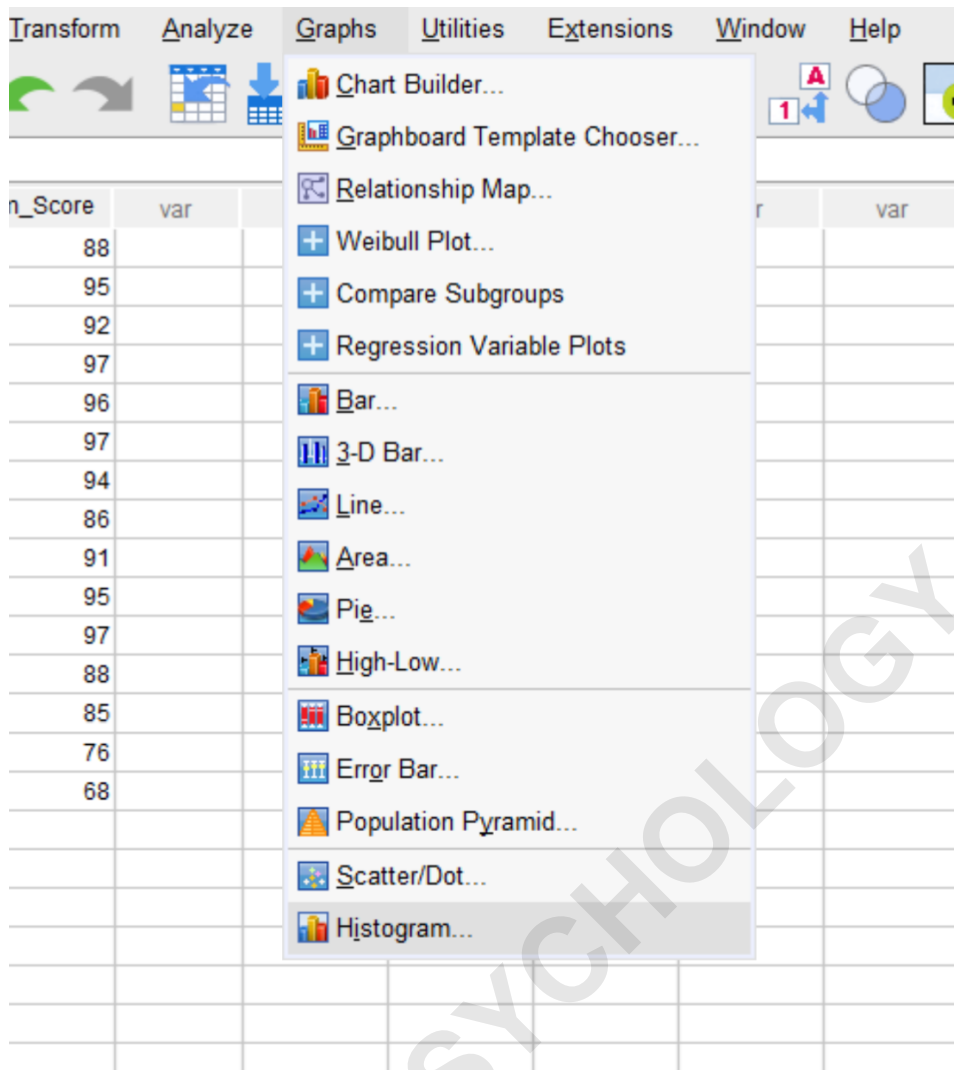
Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Exam_Score	15	68	97	89.67	8.372	-1.551	.580	2.230	1.121
Valid N (listwise)	15								

**From the output we can see the values for the skewness and kurtosis of the distribution:**

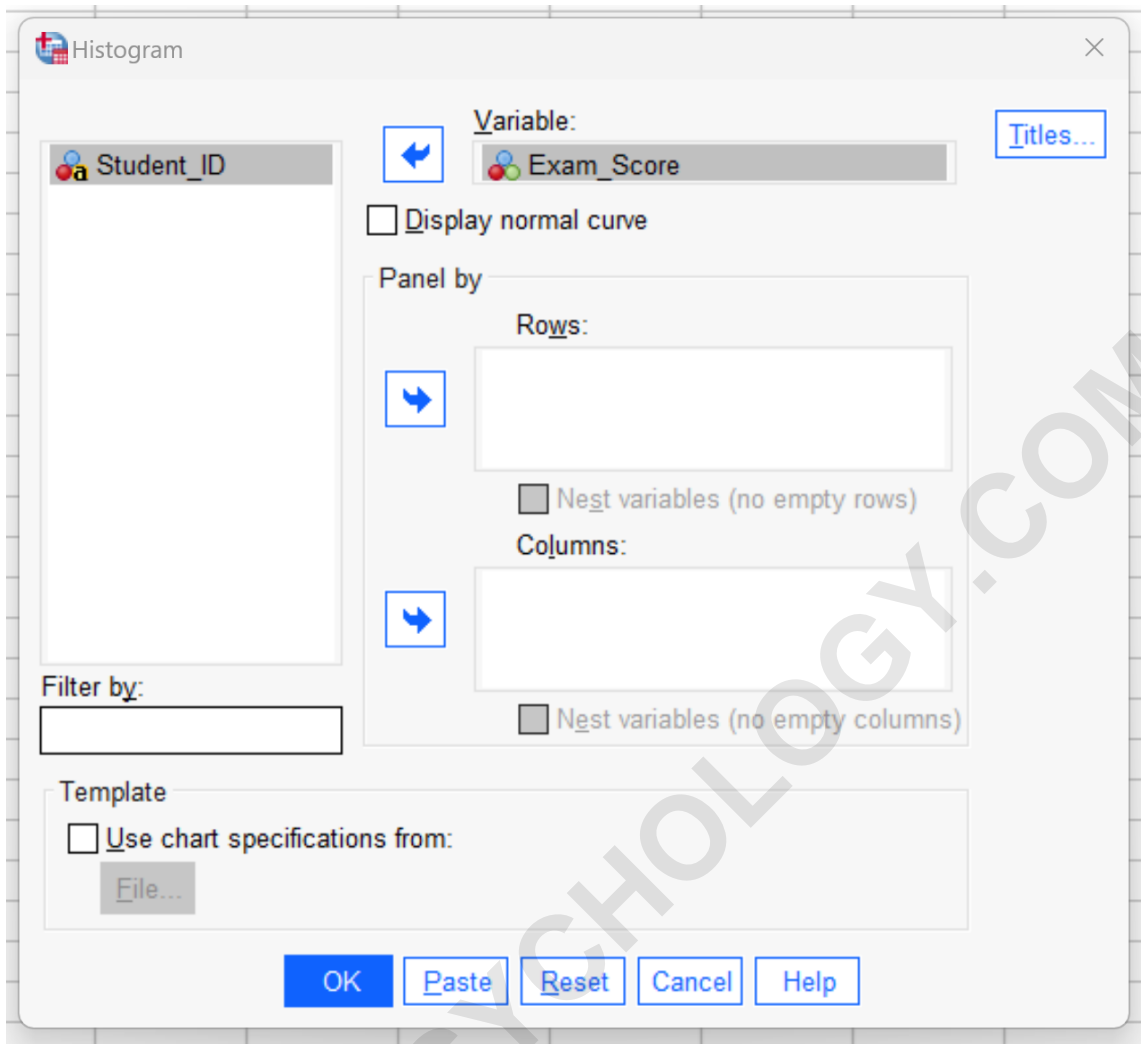
**The skewness is -1.551. Since this value is negative, it indicates that the distribution is left-skewed. The kurtosis is 2.230. Since this value is greater than zero, it indicates that the distribution has heavier "tails" than a normal distribution.**

**In addition to calculating these metrics, it can be helpful to create a histogram to visualize the distribution.**

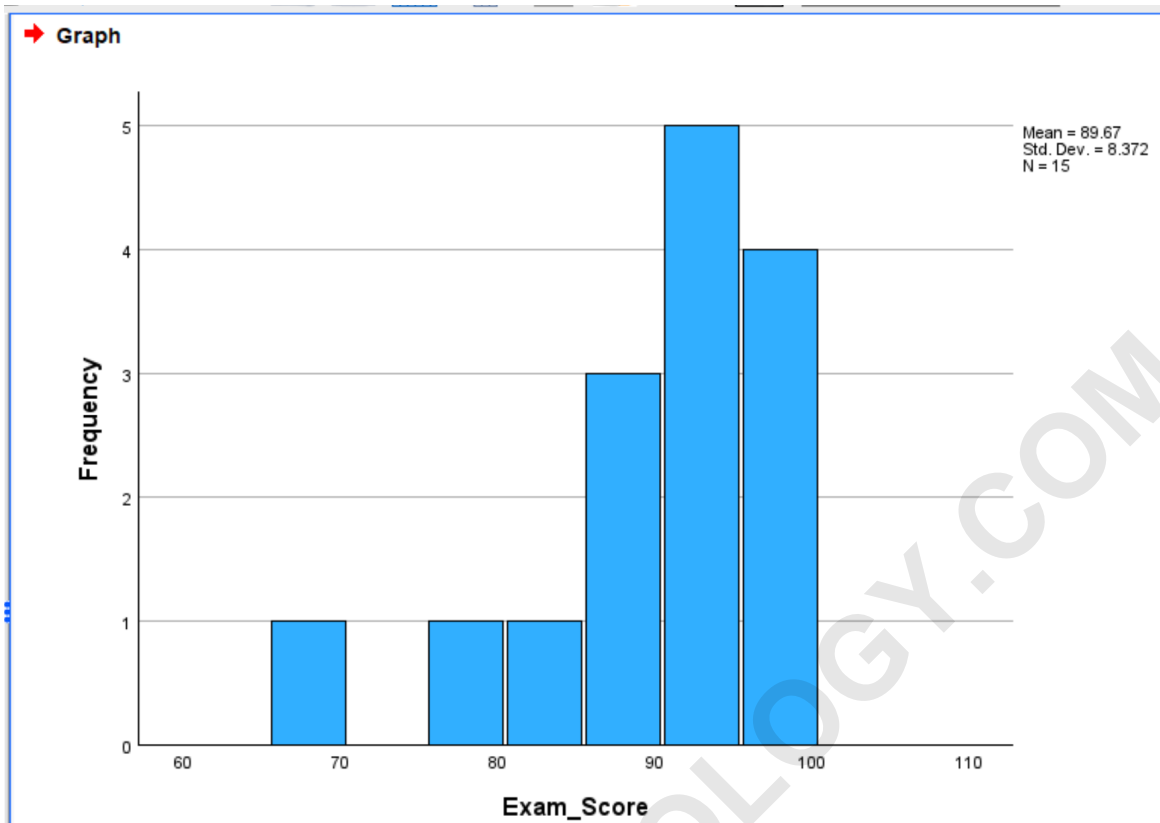
**To do so, click the Graphs tab, then click Histogram:**



**In the new window that appears, drag Exam\_Score into the Variable panel:**



Once you click OK, a histogram will be generated that shows the distribution of exam scores:



We can see that the distribution is indeed left-skewed (the "tail" extends to the left side of the distribution), which matches the fact that we calculated the skewness to be negative.

By calculating the skewness and kurtosis along with creating a histogram, we now have a pretty good understanding of the distribution of exam scores in this dataset.

The following tutorials explain how to perform other

## common tasks in SPSS:

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