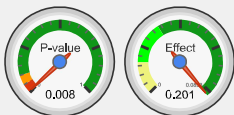


Shapiro-Wilk Test Calculator

Reporting Shapiro-Wilk test in APA Format

The Shapiro-Wilk test showed a significant departure from normality, $W(15) = .82, p = .008$

Parameter	Value
P-value	0.007805
W	0.8249
Sample size (n)	15
Average ($\bar{x}$)	90.4333
Median	92.2
Sample Standard Deviation (S)	4.0683
Sum of Squares	231.7133
b	13.825
Skewness	-1.6467
Skewness Shape	 Asymmetrical , left/negative (pval=0.005)
Excess kurtosis	3.7549
Kurtosis Shape	 Leptokurtic , long heavy tails (pval=0.001)
Outliers	78.9



Shapiro-Wilk-test, using tables as distribution (right-tailed)

Since $n \leq 50$ we used the Shapiro-Wilk tables to calculate the p-value.

The normal distribution chart is only for visualization.

1. H_0 hypothesis

Since $p\text{-value} < \alpha$, we reject the H_0 .

It is assumed that the data is not normally distributed.

In other words, the difference between the data sample and the normal distribution is big enough to be statistically significant.

2. P-value

The p-value equals **0.007805**, ($P(x \leq 2.4179) = 0.9922$). It means that the chance of type I error (rejecting a correct H_0) is small: 0.007805 (0.78%). The smaller the p-value the more it supports H_1 .

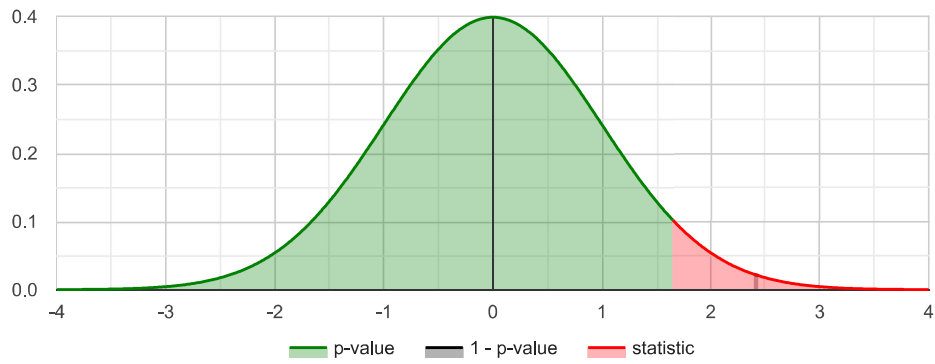
3. Test statistic

The test statistic **W** equals **0.8249**, which is not in the 95% region of acceptance: [0.8815, 1].

4. Effect size

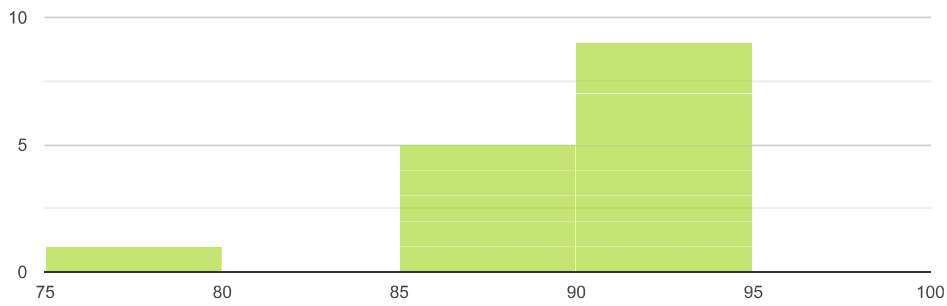
The observed effect size **KS - D** is **large, 0.2013**. This indicates that the magnitude of the difference between the sample distribution and the normal distributions is large.

Distribution: Normal(mean:0, std:1)

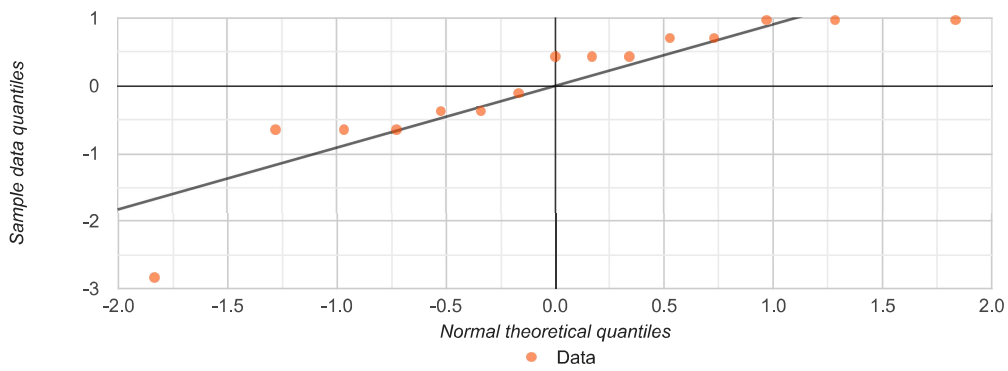


Significance level (α)

Histogram



Q-Q Plot



-5%

-7%

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