

McNemar test

McNemar's test is a statistical test used on paired nominal data. It is applied to 2×2 contingency tables with a dichotomous trait, with matched pairs of subjects, to determine whether the row and column marginal frequencies are equal

Example

		Without Training		Total
		Targets Not Reached	Targets Reached	
With Training	Targets Not Reached	10	5	15
	Targets Reached	15	20	35
Total		25	25	50

Null Hypothesis

The training programme
has no significantly
improvement in
performance

Decision Rule:

If the Significant value is less than 0.05 then reject the null hypothesis.

Decision Rule:

If the Significant value is greater than 0.05 then retain the null hypothesis.



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	WithTraining	Numeric	7	0		{0, Targets ...	None	7	Right	Nominal	Input
2	WithOutTraining	Numeric	8	0		{0, Targets ...	None	8	Right	Nominal	Input
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											

Value Labels

Value:

Label:

Spelling...

0 = "Targets Not Reached"

1 = "Targets Reached"

Add

Change

Remove

OK Cancel Help

Visible: 2 of 2 Variables

	WithTraining	WithOutTraining	var	var	var	var	var	var	var	var	var	var	var
1	Targets Reached	Targets Reached											
2	Targets Reached	Targets Reached											
3	Targets Reached	Targets Reached											
4	Targets Reached	Targets Reached											
5	Targets Reached	Targets Reached											
6	Targets Reached	Targets Reached											
7	Targets Reached	Targets Reached											
8	Targets Reached	Targets Reached											
9	Targets Reached	Targets Reached											
10	Targets Reached	Targets Reached											
11	Targets Reached	Targets Reached											
12	Targets Reached	Targets Reached											
13	Targets Reached	Targets Reached											
14	Targets Reached	Targets Reached											
15	Targets Reached	Targets Reached											
16	Targets Reached	Targets Reached											
17	Targets Reached	Targets Reached											
18	Targets Reached	Targets Reached											
19	Targets Reached	Targets Reached											
20	Targets Reached	Targets Reached											
21	Targets Reached	Targets Not Reached											
22	Targets Reached	Targets Not Reached											
23	Targets Reached	Targets Not Reached											
24	Targets Reached	Targets Not Reached											
25	Targets Reached	Targets Not Reached											



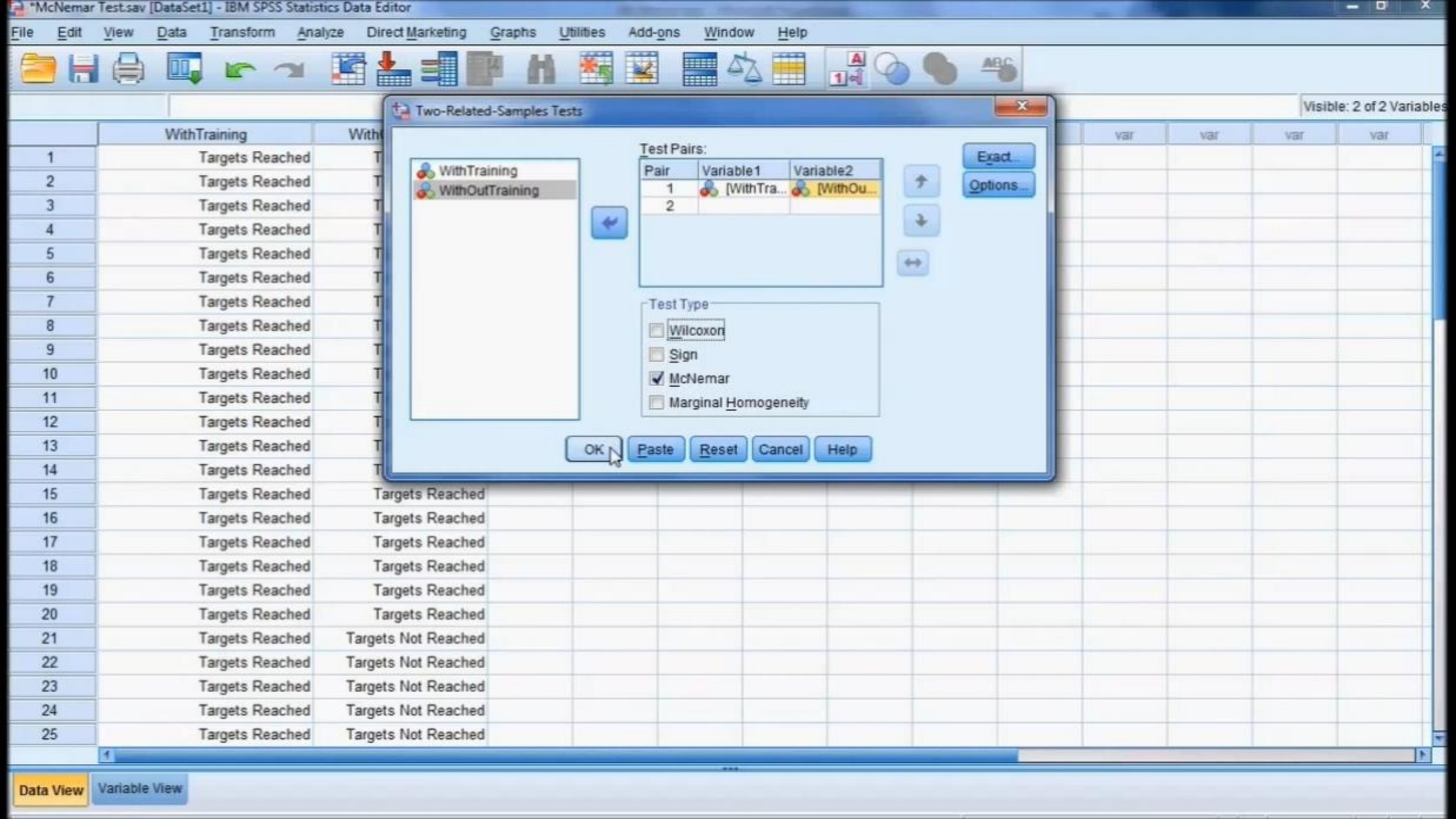
Visible: 2 of 2 Variables

	WithTraining		var	var	var	var	var	var	var	var	var
1	Targets Reached										
2	Targets Reached										
3	Targets Reached										
4	Targets Reached										
5	Targets Reached										
6	Targets Reached										
7	Targets Reached										
8	Targets Reached										
9	Targets Reached										
10	Targets Reached										
11	Targets Reached										
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18	Targets Reached										
19	Targets Reached										
20	Targets Reached										
21	Targets Reached										
22	Targets Reached										
23	Targets Reached	Targets Not Reached									
24	Targets Reached	Targets Not Reached									
25	Targets Reached	Targets Not Reached									

- Reports
- Descriptive Statistics
- Tables
- Compare Means
- General Linear Model
- Generalized Linear Models
- Mixed Models
- Correlate
- Regression
- Loglinear
- Neural Networks
- Classify
- Dimension Reduction
- Scale
- Nonparametric Tests**
- Forecasting
- Survival
- Multiple Response
- Missing Value Analysis...
- Multiple Imputation
- Complex Samples
- Simulation...
- Quality Control
- ROC Curve...
- IBM SPSS Amos...

- One Sample...
- Independent Samples...
- Related Samples...
- Legacy Dialogs**

- Chi-square...
- Binomial...
- Runs...
- 1-Sample K-S...
- 2 Independent Samples...
- K Independent Samples...
- 2 Related Samples...**
- K Related Samples...



	WithTraining	WithOutTraining
1	Targets Reached	Targets Reached
2	Targets Reached	Targets Reached
3	Targets Reached	Targets Reached
4	Targets Reached	Targets Reached
5	Targets Reached	Targets Reached
6	Targets Reached	Targets Reached
7	Targets Reached	Targets Reached
8	Targets Reached	Targets Reached
9	Targets Reached	Targets Reached
10	Targets Reached	Targets Reached
11	Targets Reached	Targets Reached
12	Targets Reached	Targets Reached
13	Targets Reached	Targets Reached
14	Targets Reached	Targets Reached
15	Targets Reached	Targets Reached
16	Targets Reached	Targets Reached
17	Targets Reached	Targets Reached
18	Targets Reached	Targets Reached
19	Targets Reached	Targets Reached
20	Targets Reached	Targets Reached
21	Targets Reached	Targets Not Reached
22	Targets Reached	Targets Not Reached
23	Targets Reached	Targets Not Reached
24	Targets Reached	Targets Not Reached
25	Targets Reached	Targets Not Reached

Two-Related-Samples Tests

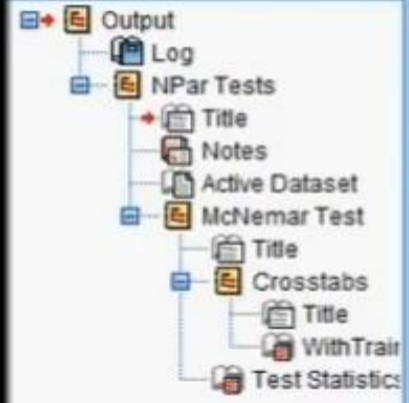
Test Pairs:

Pair	Variable1	Variable2
1	[WithTra...]	[WithOu...]
2		

Test Type:

- Wilcoxon
- Sign
- McNemar
- Marginal Homogeneity

Buttons: OK, Paste, Reset, Cancel, Help, Exact, Options



```
/MCNEMAR=WithTraining WITH WithOutTraining (PAIRED)  
/MISSING ANALYSIS.
```

➔ NPar Tests

[DataSet1] C:\Users\spss\Desktop\McNemar test\McNemar Test.sav

McNemar Test

Crosstabs

WithTraining & WithOutTraining

	WithOutTraining	
	Targets Not Reached	Targets Reached
WithTraining		
Targets Not Reached	10	5
Targets Reached	15	20

Test Statistics^a

	WithTraining & WithOutTraining
N	50
Exact Sig. (2-tailed)	.041 ^b

- a. McNemar Test
- b. Binomial distribution used.

Decision:

In this example Significant value is 0.041 which is less than 0.05, so reject the null hypothesis. i.e., The training programme has resulted in significantly improved performance of salespersons.

