

```

GET
  FILE=' /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
ONEWAY y BY ryhma
  /STATISTICS HOMOGENEITY WELCH
  /MISSING ANALYSIS
  /POSTHOC=TUKEY BONFERRONI ALPHA(0.05).

```

Oneway

Notes

Output Created	15-FEB-2012 18:44:33	
Comments		
Input	Data	/home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on cases with no missing data for any variable in the analysis.
Syntax	ONEWAY y BY ryhma /STATISTICS HOMOGENEITY WELCH /MISSING ANALYSIS /POSTHOC=TUKEY BONFERRONI ALPHA (0.05).	
Resources	Processor Time	00:00:00.04
	Elapsed Time	00:00:00.00

[DataSet1] /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav

Test of Homogeneity of Variances

y

Levene Statistic	df1	df2	Sig.
1.237	2	27	.306

ANOVA

y

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.766	2	1.883	4.846	.016
Within Groups	10.492	27	.389		
Total	14.258	29			

Robust Tests of Equality of Means

y

	Statistic ^a	df1	df2	Sig.
Welch	5.181	2	17.128	.017

a. Asymptotically F distributed.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: y

	(I) rvhma	(J) rvhma	Mean Difference (I-J)	Std. Error	Sig.	95% ...
						Lower Bound
Tukey HSD	1.00	2.00	.37100	.27878	.391	-.3202
		3.00	-.49400	.27878	.198	-1.1852
	2.00	1.00	-.37100	.27878	.391	-1.0622
		3.00	-.86500*	.27878	.012	-1.5562
	3.00	1.00	.49400	.27878	.198	-.1972
		2.00	.86500*	.27878	.012	.1738
Bonferroni	1.00	2.00	.37100	.27878	.583	-.3406
		3.00	-.49400	.27878	.263	-1.2056
	2.00	1.00	-.37100	.27878	.583	-1.0826
		3.00	-.86500*	.27878	.013	-1.5766
	3.00	1.00	.49400	.27878	.263	-.2176
		2.00	.86500*	.27878	.013	.1534

Multiple Comparisons

Dependent Variable: y

		95% ...	
		Upper Bound	
	(I) rvhma	(J) rvhma	
Tukey HSD	1.00	2.00	1.0622
		3.00	.1972
	2.00	1.00	.3202
		3.00	-.1738
	3.00	1.00	1.1852
		2.00	1.5562
Bonferroni	1.00	2.00	1.0826
		3.00	.2176
	2.00	1.00	.3406
		3.00	-.1534
	3.00	1.00	1.2056
		2.00	1.5766

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

y

		N	Subset for alpha = 0.05	
rvhma			1	2
Tukey HSD ^a	2.00	10	4.6610	
	1.00	10	5.0320	5.0320
	3.00	10		5.5260
	Sig.			.391

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.

NPAR TESTS

/K-W=y BY rvhma(1 3)

/MISSING ANALYSIS.

NPar Tests

Notes

Output Created		15-FEB-2012 18:45:08
Comments		
Input	Data	/home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /K-W=y BY ryhma(1 3) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.01
	Elapsed Time	00:00:00.00
	Number of Cases Allowed ^a	112347

a. Based on availability of workspace memory.

[DataSet1] /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav

Kruskal-Wallis Test

Ranks

	ryhma	N	Mean Rank
y	1.00	10	14.75
	2.00	10	10.35
	3.00	10	21.40
	Total	30	

Test Statistics^{a,b}

	y
Chi-Square	7.988
df	2
Asymp. Sig.	.018

a. Kruskal Wallis Test

b. Grouping Variable: ryhma

NPAR TESTS

```
/M-W= y BY ryhma(1 2)
/MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		15-FEB-2012 18:45:50
Comments		
Input	Data	/home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= y BY ryhma(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00
	Number of Cases Allowed ^a	112347

a. Based on availability of workspace memory.

```
[DataSet1] /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
```

Mann-Whitney Test

Ranks

	ryhma	N	Mean Rank	Sum of Ranks
y	1.00	10	12.25	122.50
	2.00	10	8.75	87.50
	Total	20		

Test Statistics^a

	y
Mann-Whitney U	32.500
Wilcoxon W	87.500
Z	-1.323
Asymp. Sig. (2-tailed)	.186
Exact Sig. [2*(1-tailed Sig.)]	.190 ^b

- a. Grouping Variable: ryhma
- b. Not corrected for ties.

NPAR TESTS

```
/M-W= y BY ryhma(1 3)  
/MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		15-FEB-2012 18:46:06
Comments		
Input	Data	/home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		<pre> NPAR TESTS /M-W= y BY ryhma(1 3) /MISSING ANALYSIS. </pre>
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.00
	Number of Cases Allowed ^a	112347

a. Based on availability of workspace memory.

[DataSet1] /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav

Mann-Whitney Test

Ranks

	ryhma	N	Mean Rank	Sum of Ranks
y	1.00	10	8.00	80.00
	3.00	10	13.00	130.00
	Total	20		

Test Statistics^a

	y
Mann-Whitney U	25.000
Wilcoxon W	80.000
Z	-1.890
Asymp. Sig. (2-tailed)	.059
Exact Sig. [2*(1-tailed Sig.)]	.063 ^b

a. Grouping Variable: ryhma

b. Not corrected for ties.

NPAR TESTS

```
/M-W= y BY ryhma(2 3)
/MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		15-FEB-2012 18:46:33
Comments		
Input	Data	/home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= y BY ryhma(2 3) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.01
	Elapsed Time	00:00:00.00
	Number of Cases Allowed ^a	112347

a. Based on availability of workspace memory.

[DataSet1] /home/mottonen/Opetus/Helsinki/Kurssit/SotuTime/SPSS/sato.sav

Mann-Whitney Test

Ranks

	ryhma	N	Mean Rank	Sum of Ranks
y	2.00	10	7.10	71.00
	3.00	10	13.90	139.00
	Total	20		

Test Statistics^a

	y
Mann-Whitney U	16.000
Wilcoxon W	71.000
Z	-2.570
Asymp. Sig. (2-tailed)	.010
Exact Sig. [2*(1-tailed Sig.)]	.009 ^b

a. Grouping Variable: ryhma

b. Not corrected for ties.