

## Host

### Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output"'
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.15

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\png" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\png"'
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav \unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\csv " mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\csv "'
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.11

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav \unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\txt" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\txt"...
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.11

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\pdf" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\pdf" .
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.11

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\spv" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\spv" .
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\sav" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\sav" .
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\png*.png" 2>nul'.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.11

## Host

## Notes

Output Created		23-JUN-2026 09:40:30
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\csv\*.csv" 2>nul'.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.12

## Host

## Notes

Output Created		23-JUN-2026 09:40:31
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\txt\*.txt" 2>nul'.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

## Host

## Notes

Output Created		23-JUN-2026 09:40:31
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\pdf\*.pdf" 2>nul'.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.12

## Host

## Notes

Output Created		23-JUN-2026 09:40:31
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\spv\*.spv" 2>nul'.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

## Host

## Notes

Output Created		23-JUN-2026 09:40:31
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Unbalanced ANOVA\SPSS_Output\sav\unbalanced_anova_spss_ready_data.sav
	Active Dataset	UnbalancedANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND='cmd /c del /q "D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\sav\*.sav" 2>nul'.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.11

File "<string>", line 16

```
report_lines.append(f"Dataset: {DATASET}")
```

^

SyntaxError: invalid syntax

## Welch's ANOVA - G3 by Studytime

```
>Warning # 2004.  Command name: SUBTITLE  
>The subtitle given exceeds 60 characters in length.  The first 60 characters  
>will be used.
```

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

## Means

### Notes

Output Created		23-JUN-2026 09:40:31
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS_Output\sav\welchs_anova_spss_ready_data.sav
	Active Dataset	WelchsANOVADData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	For each dependent variable in a table, user-defined missing values for the dependent and all grouping variables are treated as missing.
	Cases Used	Cases used for each table have no missing values in any independent variable, and not all dependent variables have missing values.
Syntax		MEANS TABLES=G3 BY studytime /CELLS=COUNT MEAN STDDEV VARIANCE MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[WelchsANOVADData] D:\DATA ANALYSIS\E ANOVA Family\Welchs ANOVA\SPSS\_Output\sav\welchs\_anova\_spss\_ready\_data.sav

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

### Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G3 * studytime	649	100.0%	0	0.0%	649	100.0%

### Report

G3

studytime	N	Mean	Std. Deviation	Variance	Minimum	Maximum
1	212	10.8443	3.21862	10.360	.00	18.00
2	305	12.0918	3.24313	10.518	.00	19.00
3	97	13.2268	2.50210	6.261	8.00	18.00
4	35	13.0571	3.03841	9.232	6.00	19.00
Total	649	11.9060	3.23066	10.437	.00	19.00

### Oneway

#### Notes

Output Created	23-JUN-2026 09:40:31
Comments	
Input	Data
	D:\DATA ANALYSIS\IE ANOVA Family\Welchs ANOVA\SPSS_Output\sav\welchs_anova_spss_read y_data.sav
	Active Dataset
	WelchsANOVAData
	Filter
	<none>
	Weight
	<none>
	Split File
	<none>
	N of Rows in Working Data File
	649

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

### Notes

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 G3 BY studytime /STATISTICS DESCRIPTIVES HOMOGENEITY WELCH /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

### Descriptives

G3

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	
1	212	10.8443	3.21862	.22106	10.4086	11.2801	.00
2	305	12.0918	3.24313	.18570	11.7264	12.4572	.00
3	97	13.2268	2.50210	.25405	12.7225	13.7311	8.00
4	35	13.0571	3.03841	.51358	12.0134	14.1009	6.00
Total	649	11.9060	3.23066	.12681	11.6570	12.1550	.00

### Descriptives

G3

	Maximum
1	18.00
2	19.00
3	18.00
4	19.00
Total	19.00

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

### Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	.985	3	645	.400
	Based on Median	1.026	3	645	.380
	Based on Median and with adjusted df	1.026	3	609.885	.380
	Based on trimmed mean	1.081	3	645	.356

### ANOVA

G3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	465.078	3	155.026	15.876	.000
Within Groups	6298.189	645	9.765		
Total	6763.267	648			

### Robust Tests of Equality of Means

G3

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	18.183	3	139.101	.000

a. Asymptotically F distributed.

### Graph

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

**Notes**

Output Created		23-JUN-2026 09:40:32
Comments		
Input	Data	D:\DATA ANALYSIS\EANOVA Family\Welchs ANOVA\SPSS_Output\sav\welchs_anova_spss_read_y_data.sav
	Active Dataset	WelchsANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /BOXPLOT=G3 BY studytime /TITLE='Welch ANOVA: G3 Distribution by Studytime'.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.05

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

**Graph**

Welch's ANOVA - G3 by Studytime  
 Welch test is requested because it does not assume equal gro

**Notes**

Output Created		23-JUN-2026 09:40:32
Comments		
Input	Data	D:\DATA ANALYSIS\EANOVA Family\Welchs ANOVA\SPSS_Output\sav\welchs_anova_spss_read_y_data.sav
	Active Dataset	WelchsANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /BAR(SIMPLE)=MEAN (G3) BY studytime /TITLE='Welch ANOVA: Mean G3 by Studytime'.
Resources	Processor Time	00:00:00.75
	Elapsed Time	00:00:00.53

Welch's ANOVA - G3 by Studytime  
Welch test is requested because it does not assume equal gro

