

```
36 0 OUTPUT ACTIVATE BlandAltmanPlotOutput.  
36 0 M> OUTPUT ACTIVATE BlandAltmanPlotOutput.  
37 0 TITLE 'Bland-Altman Agreement Plot'.  
37 0 M> TITLE 'Bland-Altman Agreement Plot'.
```

Bland-Altman Agreement Plot

```

38 0
38 0 M>
39 0 GET DATA
39 0 M> GET DATA
40 0 /TYPE=TXT
40 0 M> /TYPE=TXT
41 0 /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland Alt
man Plot\dataset.csv'
41 0 M> /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland
Altman Plot\dataset.csv'
42 0 /ENCODING='UTF8'
42 0 M> /ENCODING='UTF8'
43 0 /DELCASE=LINE
43 0 M> /DELCASE=LINE
44 0 /DELIMITERS=', '
44 0 M> /DELIMITERS=', '
45 0 /QUALIFIER='''
45 0 M> /QUALIFIER='''
46 0 /ARRANGEMENT=DELIMITED
46 0 M> /ARRANGEMENT=DELIMITED
47 0 /FIRSTCASE=2
47 0 M> /FIRSTCASE=2
48 0 /VARIABLES=
48 0 M> /VARIABLES=
49 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
49 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
50 0 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
50 0 M> Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
51 0 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
A8
51 0 M> traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 fams
up A8
52 0 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A
8
52 0 M> paid A8 activities A8 nursery A8 higher A8 internet A8 romanti
c A8
53 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0

```

Bland-Altman Agreement Plot

```

53 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
54 0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
54 0 M> absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
55 0 DATASET NAME BlandAltmanPlotData.
55 0 M> DATASET NAME BlandAltmanPlotData.
56 0 EXECUTE.
56 0 M> EXECUTE.
57 0
57 0 M>
58 0 COMPUTE subject_id=$CASENUM.
58 0 M> COMPUTE subject_id=$CASENUM.
59 0 COMPUTE Dalc_R=6-Dalc.
59 0 M> COMPUTE Dalc_R=6-Dalc.
60 0 COMPUTE Walc_R=6-Walc.
60 0 M> COMPUTE Walc_R=6-Walc.
61 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
61 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
62 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
62 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
63 0 RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
63 0 M> RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
64 0 INTO G1_cat3 G2_cat3 G3_cat3.
64 0 M> INTO G1_cat3 G2_cat3 G3_cat3.
65 0 RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
65 0 M> RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
66 0 INTO G1_cat5 G3_cat5.
66 0 M> INTO G1_cat5 G3_cat5.
67 0 VARIABLE LEVEL schoolsup_b famsup_b paid_b activities_b higher_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (NOMINAL).
67 0 M> VARIABLE LEVEL schoolsup_b famsup_b paid_b activities_b higher_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (NOMINAL).

```

Bland-Altman Agreement Plot

```
68 0 FORMATS subject_id schoolsup_b famsup_b paid_b activities_b higher_b
internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (F5
      .0).
68 0 M> FORMATS subject_id schoolsup_b famsup_b paid_b activities_b higher
_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5
      (F5.0).
69 0 EXECUTE.
69 0 M> EXECUTE.
70 0
70 0 M>
71 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
71 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
72 0 TITLE 'Bland-Altman Agreement Plot'.
72 0 M> TITLE 'Bland-Altman Agreement Plot'.
```

Bland-Altman Agreement Plot

```
73 0 SUBTITLE 'G3 minus G1 paired differences against pair means'.  
73 0 M> SUBTITLE 'G3 minus G1 paired differences against pair means'.
```

Bland-Altman Agreement Plot G3 minus G1 paired differences against pair means

```

74 0 COMPUTE ba_mean=(G1+G3)/2.
74 0 M> COMPUTE ba_mean=(G1+G3)/2.
75 0 COMPUTE ba_difference=G3-G1.
75 0 M> COMPUTE ba_difference=G3-G1.
76 0 DESCRIPTIVES VARIABLES=ba_difference ba_mean /STATISTICS=MEAN STDDEV
MIN MAX.
76 0 M> DESCRIPTIVES VARIABLES=ba_difference ba_mean /STATISTICS=MEAN STDD
EV MIN MAX.

```

Descriptives

Notes

Output Created		16-JUL-2026 21:08:16
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland Altman Plot\dataset.csv
	Active Dataset	BlandAltmanPlotData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=ba_differenc e ba_mean /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.06

[BlandAltmanPlotData]

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ba_difference	649	-11.00	11.00	.5069	1.82076
ba_mean	649	2.00	18.50	11.6525	2.85623
Valid N (listwise)	649				

77 0 CORRELATIONS /VARIABLES=ba_mean ba_difference /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.

77 0 M> CORRELATIONS /VARIABLES=ba_mean ba_difference /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.

Correlations

Notes

Output Created		16-JUL-2026 21:08:16
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland Altman Plot\dataset.csv
	Active Dataset	BlandAltmanPlotData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=ba_mean ba_difference /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

Notes

Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.06

Correlations

		ba_mean	ba_difference
ba_mean	Pearson Correlation	1	.279**
	Sig. (2-tailed)		.000
	N	649	649
ba_difference	Pearson Correlation	.279**	1
	Sig. (2-tailed)	.000	
	N	649	649

** . Correlation is significant at the 0.01 level (2-tailed).

```
78 0 GRAPH /SCATTERPLOT(BIVAR)=ba_mean WITH ba_difference.
78 0 M> GRAPH /SCATTERPLOT(BIVAR)=ba_mean WITH ba_difference.
```

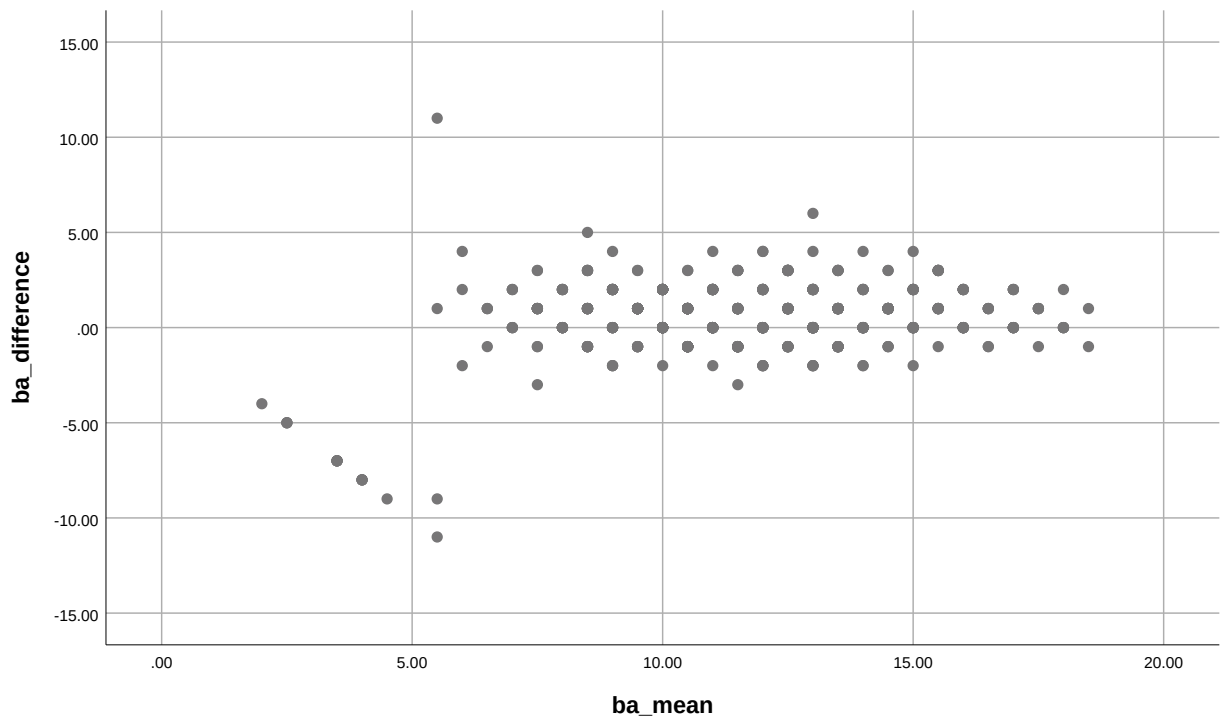
Graph

Bland-Altman Agreement Plot

G3 minus G1 paired differences against pair means

Notes

Output Created		16-JUL-2026 21:08:16
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland Altman Plot\dataset.csv
	Active Dataset	BlandAltmanPlotData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT (BIVAR)=ba_mean WITH ba_difference.
Resources	Processor Time	00:00:05.08
	Elapsed Time	00:00:02.18



Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

```
79 0 EXAMINE VARIABLES=ba_difference /PLOT=HISTOGRAM NPLOT /STATISTICS=DESCRIPTIVES.
```

```
79 0 M> EXAMINE VARIABLES=ba_difference /PLOT=HISTOGRAM NPLOT /STATISTICS=DESCRIPTIVES.
```

Explore

Notes

Output Created		16-JUL-2026 21:08:19
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Bland Altman Plot\dataset.csv
	Active Dataset	BlandAltmanPlotData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
Syntax		EXAMINE VARIABLES=ba_differenc e /PLOT=HISTOGRAM NPLOT /STATISTICS=DESCRIPT IVES.
Resources	Processor Time	00:00:01.72
	Elapsed Time	00:00:01.47

Total Sample

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
ba_difference	649	100.0%	0	0.0%	649	100.0%

Descriptives

		Statistic	Std. Error
ba_difference	Mean	.5069	.07147
	95% Confidence Interval for Mean	Lower Bound	.3666
		Upper Bound	.6473
	5% Trimmed Mean	.6173	
	Median	1.0000	
	Variance	3.315	
	Std. Deviation	1.82076	
	Minimum	-11.00	
	Maximum	11.00	
	Range	22.00	
	Interquartile Range	1.00	
	Skewness	-1.628	.096
	Kurtosis	10.023	.192

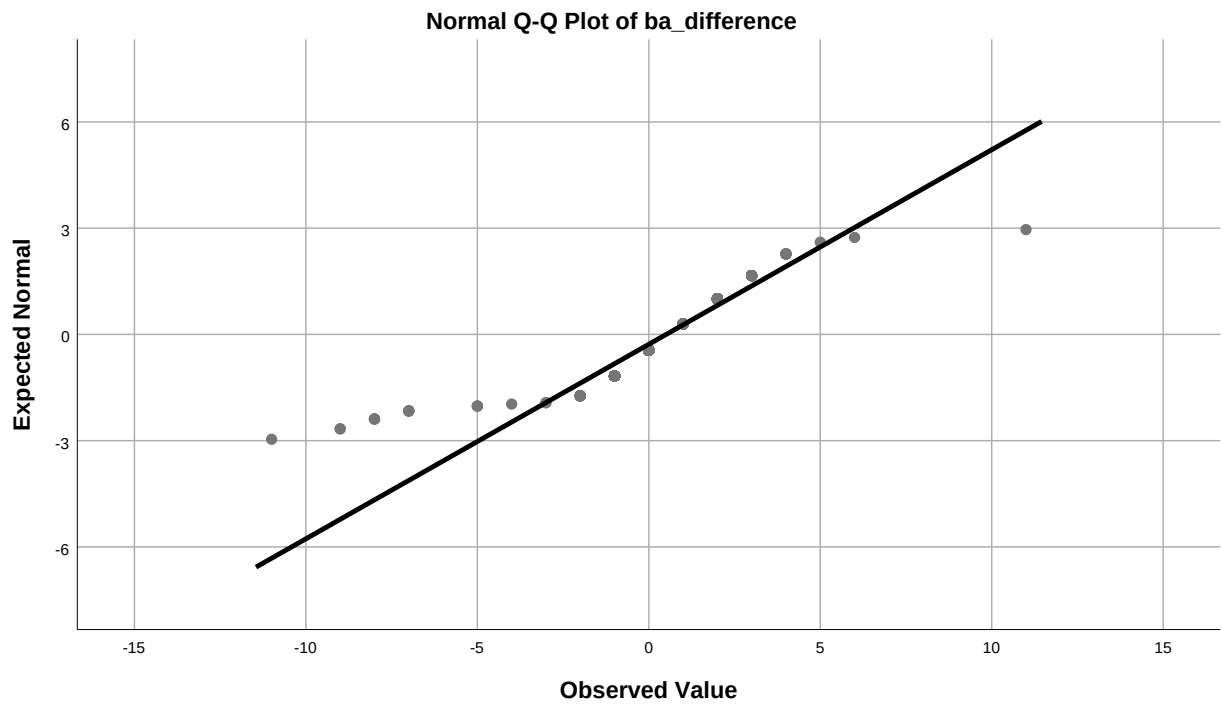
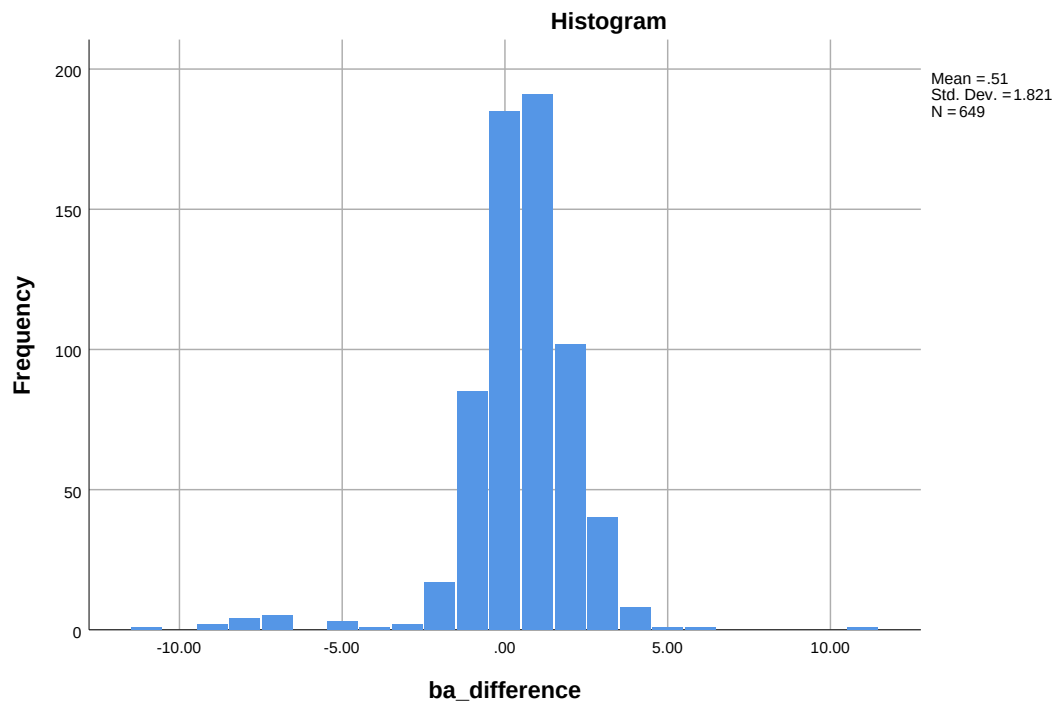
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ba_difference	.205	649	.000	.811	649	.000

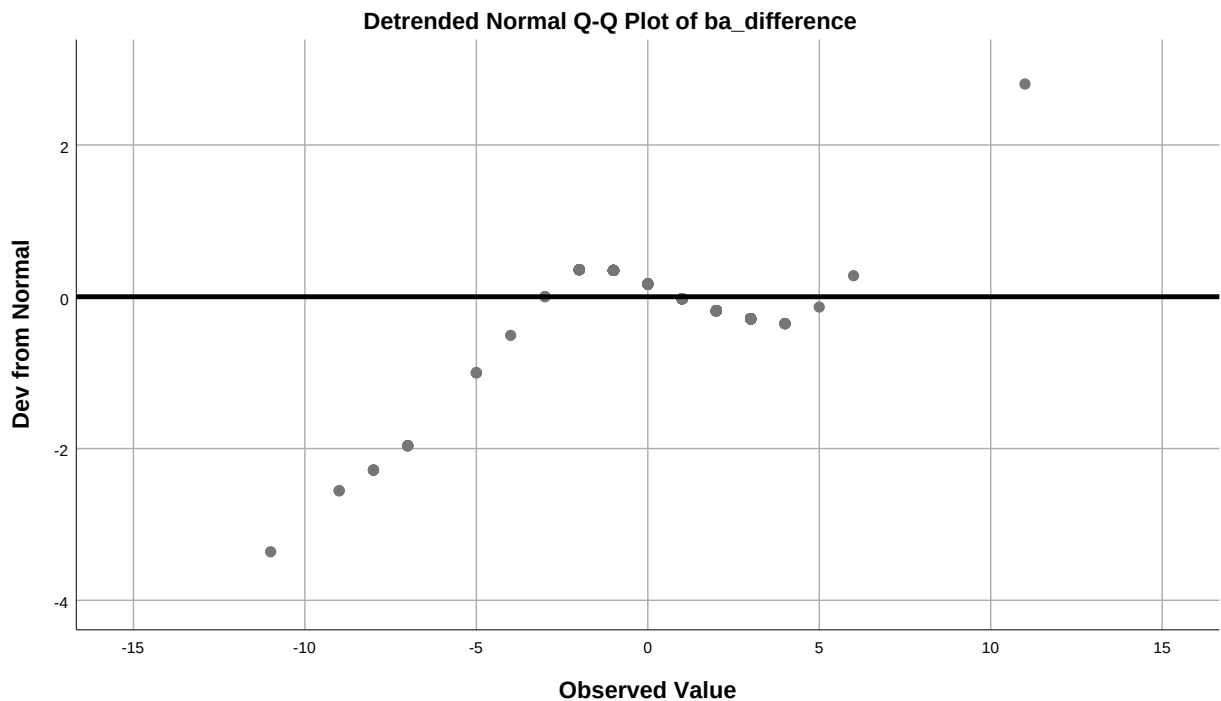
a. Lilliefors Significance Correction

ba_difference

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means



Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means



```

80  0  * END METHOD-SPECIFIC SPSS WORKFLOW.
80  0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
81  0
81  0 M>
82  0  SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Blan
d Altman Plot\SPSS_Output\sav\bland-altman-plot_spss_r
      eady_data.sav' /COMPRESSED.
82  0 M> SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\B
land Altman Plot\SPSS_Output\sav\bland-altman-plot_sps
      s_ready_data.sav' /COMPRESSED.
83  0
83  0 M>
84  0  ECHO '=====
====='.
84  0 M> ECHO '=====
====='.
=====
85  0  ECHO 'BLAND-ALTMAN AGREEMENT PLOT'.
85  0 M> ECHO 'BLAND-ALTMAN AGREEMENT PLOT'.
BLAND-ALTMAN AGREEMENT PLOT

```

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

```
86 0 ECHO 'Design: Pairwise agreement of G1 and G3 on the original grade s
cale.'.
86 0 M> ECHO 'Design: Pairwise agreement of G1 and G3 on the original grad
e scale.'.
Design: Pairwise agreement of G1 and G3 on the original grade scale.
87 0 ECHO 'Null hypothesis: The mean G3-minus-G1 bias is zero and differen
ces show no magnitude pattern.'.
87 0 M> ECHO 'Null hypothesis: The mean G3-minus-G1 bias is zero and diffe
rences show no magnitude pattern.'.
Null hypothesis: The mean G3-minus-G1 bias is zero and differences show no mag
nitude pattern.
88 0 ECHO 'Formula: d_i=G3_i-G1_i; bias=mean(d); 95% limits=bias +/- 1.96
SD(d).'.
88 0 M> ECHO 'Formula: d_i=G3_i-G1_i; bias=mean(d); 95% limits=bias +/- 1.
96 SD(d).'.
Formula: d_i=G3_i-G1_i; bias=mean(d); 95% limits=bias +/- 1.96 SD(d).
89 0 ECHO 'Variables: G1, G3'.
89 0 M> ECHO 'Variables: G1, G3'.
Variables: G1, G3
90 0 ECHO 'Rows analyzed: 649'.
90 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
91 0 ECHO 'lower_limit = -3.061748045244716'.
91 0 M> ECHO 'lower_limit = -3.061748045244716'.
lower_limit = -3.061748045244716
92 0 ECHO 'mean_bias = 0.5069337442218799'.
92 0 M> ECHO 'mean_bias = 0.5069337442218799'.
mean_bias = 0.5069337442218799
93 0 ECHO 'n_pairs = 649'.
93 0 M> ECHO 'n_pairs = 649'.
n_pairs = 649
94 0 ECHO 'sd_difference = 1.8207560150339774'.
94 0 M> ECHO 'sd_difference = 1.8207560150339774'.
sd_difference = 1.8207560150339774
95 0 ECHO 'upper_limit = 4.075615533688476'.
95 0 M> ECHO 'upper_limit = 4.075615533688476'.
upper_limit = 4.075615533688476
96 0 ECHO 'lower_limit = -3.061748045244716'.
96 0 M> ECHO 'lower_limit = -3.061748045244716'.
```

Bland-Altman Agreement Plot
G3 minus G1 paired differences against pair means

```

lower_limit = -3.061748045244716
  97  0  ECHO 'mean_bias = 0.5069337442218799'.
  97  0 M> ECHO 'mean_bias = 0.5069337442218799'.
mean_bias = 0.5069337442218799
  98  0  ECHO 'n_pairs = 649'.
  98  0 M> ECHO 'n_pairs = 649'.
n_pairs = 649
  99  0  ECHO 'sd_difference = 1.8207560150339774'.
  99  0 M> ECHO 'sd_difference = 1.8207560150339774'.
sd_difference = 1.8207560150339774
 100  0  ECHO 'upper_limit = 4.075615533688476'.
 100  0 M> ECHO 'upper_limit = 4.075615533688476'.
upper_limit = 4.075615533688476
 101  0  ECHO 'Cross-check status: pass'.
 101  0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
 102  0  ECHO '=====
====='.
 102  0 M> ECHO '=====
====='.
=====
 103  0
 103  0 M>
 104  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tes
ts\Bland Altman Plot\SPSS_Output\spv\bland-altman-plot
      _spss_output.spv'.
 104  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement
Tests\Bland Altman Plot\SPSS_Output\spv\bland-altman-p
      lot_spss_output.spv'.
 105  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
 105  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING

```