

```
117 0 OUTPUT ACTIVATE IntraclassCorrelationCoefficientOutput.  
117 0 M> OUTPUT ACTIVATE IntraclassCorrelationCoefficientOutput.  
118 0 TITLE 'Intraclass Correlation Coefficient ICC(2,k)'.  
118 0 M> TITLE 'Intraclass Correlation Coefficient ICC(2,k)'.
```

Intraclass Correlation Coefficient ICC(2,k)

```

119 0
119 0 M>
120 0 GET DATA
120 0 M> GET DATA
121 0 /TYPE=TXT
121 0 M> /TYPE=TXT
122 0 /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv'
122 0 M> /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv'
123 0 /ENCODING='UTF8'
123 0 M> /ENCODING='UTF8'
124 0 /DELCASE=LINE
124 0 M> /DELCASE=LINE
125 0 /DELIMITERS=', '
125 0 M> /DELIMITERS=', '
126 0 /QUALIFIER='"'
126 0 M> /QUALIFIER='"'
127 0 /ARRANGEMENT=DELIMITED
127 0 M> /ARRANGEMENT=DELIMITED
128 0 /FIRSTCASE=2
128 0 M> /FIRSTCASE=2
129 0 /VARIABLES=
129 0 M> /VARIABLES=
130 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
130 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
131 0 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
131 0 M> Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
132 0 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
A8
132 0 M> traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
up A8
133 0 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A
8
133 0 M> paid A8 activities A8 nursery A8 higher A8 internet A8 romanti
c A8
134 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0

```

Intraclass Correlation Coefficient ICC(2,k)

```

134 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
135 0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
135 0 M> absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
136 0 DATASET NAME IntraclassCorrelationCoefficientData.
136 0 M> DATASET NAME IntraclassCorrelationCoefficientData.
137 0 EXECUTE.
137 0 M> EXECUTE.
138 0
138 0 M>
139 0 COMPUTE subject_id=$CASENUM.
139 0 M> COMPUTE subject_id=$CASENUM.
140 0 COMPUTE Dalc_R=6-Dalc.
140 0 M> COMPUTE Dalc_R=6-Dalc.
141 0 COMPUTE Walc_R=6-Walc.
141 0 M> COMPUTE Walc_R=6-Walc.
142 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
142 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
143 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
143 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
144 0 RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
144 0 M> RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
145 0 INTO G1_cat3 G2_cat3 G3_cat3.
145 0 M> INTO G1_cat3 G2_cat3 G3_cat3.
146 0 RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
146 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)
147 0 INTO G1_cat5 G3_cat5.
147 0 M> INTO G1_cat5 G3_cat5.
148 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).
148 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).

```

Intraclass Correlation Coefficient ICC(2,k)

```
149 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).
149 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).
150 0 EXECUTE.
150 0 M> EXECUTE.
151 0
151 0 M>
152 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
152 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
153 0 TITLE 'Intraclass Correlation Coefficient ICC Two K'.
153 0 M> TITLE 'Intraclass Correlation Coefficient ICC Two K'.
```

Intraclass Correlation Coefficient ICC Two K

```
154 0 SUBTITLE 'Two-way random average-measure absolute agreement for three
ratings'.
154 0 M> SUBTITLE 'Two-way random average-measure absolute agreement for th
ree ratings'.

>Warning # 2004 on line 154. Command name: SUBTITLE
>The subtitle given exceeds 60 characters in length. The first 60 characters
>will be used.
```

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

```

155  0  RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Average of random raters') AL
L /MODEL=ALPHA
155  0 M> RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Average of random raters')
ALL /MODEL=ALPHA
156  0  /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL
156  0 M> /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL
157  0  /ICC=MODEL(RANDOM) TYPE(ABSOLUTE) CIN=95 TESTVAL=0.
157  0 M> /ICC=MODEL(RANDOM) TYPE(ABSOLUTE) CIN=95 TESTVAL=0.

```

Reliability

Notes

Output Created		16-JUL-2026 21:12:32
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv
	Active Dataset	IntraclassCorrelationCoeffi cientData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
	Matrix Input	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\intraclass_corr elation_coefficient_spss_s yntax.sps
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Notes

Syntax		RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Average of random raters') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL /ICC=MODEL(RANDOM) TYPE(Absolute) CIN=95 TESTVAL=0.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.10

[IntraclassCorrelationCoefficientData]

Scale: Average of random raters

Case Processing Summary

		N	%
Cases	Valid	649	100.0
	Excluded ^a	0	.0
	Total	649	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.951	.953	3

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Item Statistics

	Mean	Std. Deviation	N
G1	11.40	2.745	649
G2	11.57	2.914	649
G3	11.91	3.231	649

Inter-Item Correlation Matrix

	G1	G2	G3
G1	1.000	.865	.826
G2	.865	1.000	.919
G3	.826	.919	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
G1	23.48	36.219	.862	.755	.955
G2	23.31	32.632	.935	.879	.898
G3	22.97	29.863	.905	.848	.927

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
34.88	72.251	8.500	3

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0		
		Lower Bound	Upper Bound	Value	df1	df2
Single Measures	.859 ^a	.836	.878	20.246	648	1296
Average Measures	.948	.939	.956	20.246	648	1296

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Intraclass Correlation Coefficient

	F Test with ..
	Sig
Single Measures	.000
Average Measures	.000

Two-way random effects model where both people effects and measures effects are random.

- a. The estimator is the same, whether the interaction effect is present or not.
- b. Type A intraclass correlation coefficients using an absolute agreement definition.

```
158 0 COMPUTE icc_average=MEAN(G1,G2,G3).
158 0 M> COMPUTE icc_average=MEAN(G1,G2,G3).
159 0 FREQUENCIES VARIABLES=icc_average /STATISTICS=MEAN MEDIAN STDDEV MINIMUM MAXIMUM /HISTOGRAM.
159 0 M> FREQUENCIES VARIABLES=icc_average /STATISTICS=MEAN MEDIAN STDDEV MINIMUM MAXIMUM /HISTOGRAM.
```

Frequencies

Notes

Output Created		16-JUL-2026 21:12:33
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv
	Active Dataset	IntraclassCorrelationCoefficientData
	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 are based on all cases with valid data.

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Notes

Syntax		FREQUENCIES VARIABLES=icc_average /STATISTICS=MEAN MEDIAN STDDEV MINIMUM MAXIMUM /HISTOGRAM.
Resources	Processor Time	00:00:01.48
	Elapsed Time	00:00:01.13

Statistics

icc_average

N	Valid	649
	Missing	0
Mean		11.6251
Median		11.6667
Std. Deviation		2.83336
Minimum		1.33
Maximum		18.67

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

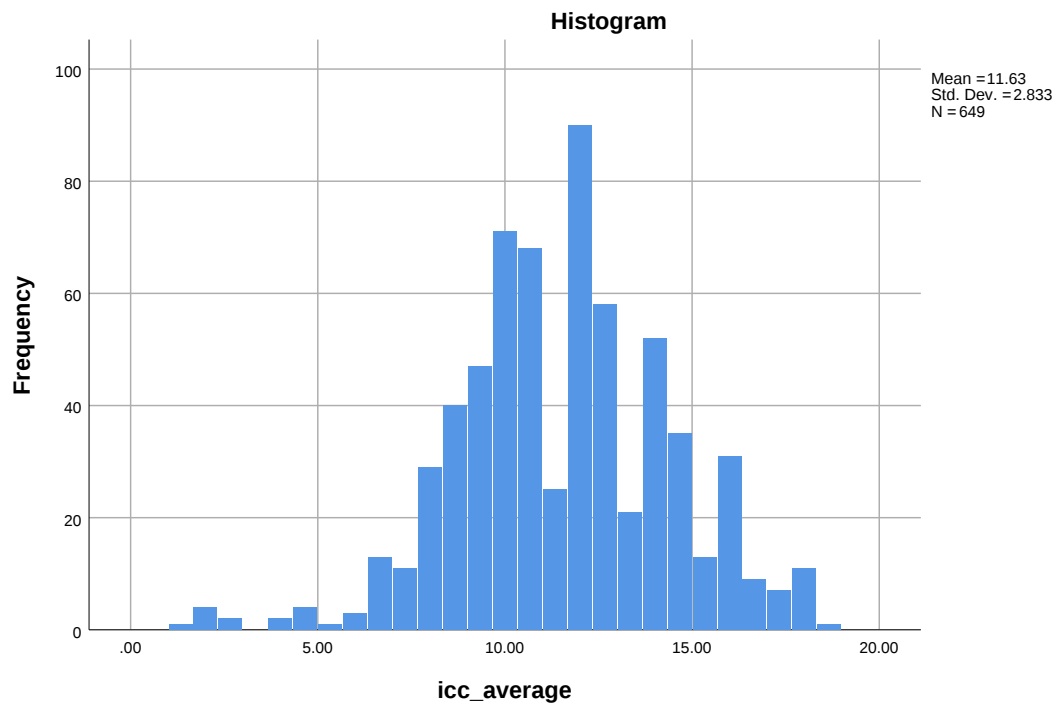
		icc_average			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.33	1	.2	.2	.2
	1.67	2	.3	.3	.5
	2.33	2	.3	.3	.8
	2.67	1	.2	.2	.9
	3.00	1	.2	.2	1.1
	4.00	1	.2	.2	1.2
	4.33	1	.2	.2	1.4
	4.67	3	.5	.5	1.8
	5.00	1	.2	.2	2.0
	5.33	1	.2	.2	2.2
	5.67	2	.3	.3	2.5
	6.33	1	.2	.2	2.6
	6.67	5	.8	.8	3.4
	7.00	8	1.2	1.2	4.6
	7.33	11	1.7	1.7	6.3
	7.67	8	1.2	1.2	7.6
	8.00	9	1.4	1.4	8.9
	8.33	12	1.8	1.8	10.8
	8.67	20	3.1	3.1	13.9
	9.00	20	3.1	3.1	16.9
	9.33	21	3.2	3.2	20.2
	9.67	26	4.0	4.0	24.2
	10.00	42	6.5	6.5	30.7
	10.33	29	4.5	4.5	35.1
	10.67	37	5.7	5.7	40.8
	11.00	31	4.8	4.8	45.6
	11.33	25	3.9	3.9	49.5
	11.67	23	3.5	3.5	53.0
	12.00	29	4.5	4.5	57.5
	12.33	38	5.9	5.9	63.3
	12.67	25	3.9	3.9	67.2
	13.00	33	5.1	5.1	72.3

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

icc_average

	Frequency	Percent	Valid Percent	Cumulative Percent
13.33	21	3.2	3.2	75.5
13.67	22	3.4	3.4	78.9
14.00	15	2.3	2.3	81.2
14.33	15	2.3	2.3	83.5
14.67	21	3.2	3.2	86.7
15.00	14	2.2	2.2	88.9
15.33	13	2.0	2.0	90.9
15.67	12	1.8	1.8	92.8
16.00	12	1.8	1.8	94.6
16.33	7	1.1	1.1	95.7
16.67	2	.3	.3	96.0
17.00	7	1.1	1.1	97.1
17.33	7	1.1	1.1	98.2
17.67	5	.8	.8	98.9
18.00	6	.9	.9	99.8
18.67	1	.2	.2	100.0
Total	649	100.0	100.0	

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three



```
160 0 MEANS TABLES=G1 G2 G3 /CELLS=COUNT MEAN VARIANCE STDDEV.
160 0 M> MEANS TABLES=G1 G2 G3 /CELLS=COUNT MEAN VARIANCE STDDEV.
```

Means

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Notes

Output Created		16-JUL-2026 21:12:34
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv
	Active Dataset	IntraclassCorrelationCoefficientData
	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=G1 G2 G3 /CELLS=COUNT MEAN VARIANCE STDDEV.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:00.08

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Case Processing Summary

	Included		Cases Excluded		Total	
	N	Percent	N	Percent	N	Percent
G1	649	100.0%	0	0.0%	649	100.0%
G2	649	100.0%	0	0.0%	649	100.0%
G3	649	100.0%	0	0.0%	649	100.0%

Report

	G1	G2	G3
N	649	649	649
Mean	11.40	11.57	11.91
Variance	7.536	8.489	10.437
Std. Deviation	2.745	2.914	3.231

161 0 GRAPH /SCATTERPLOT(MATRIX)=G1 G2 G3.

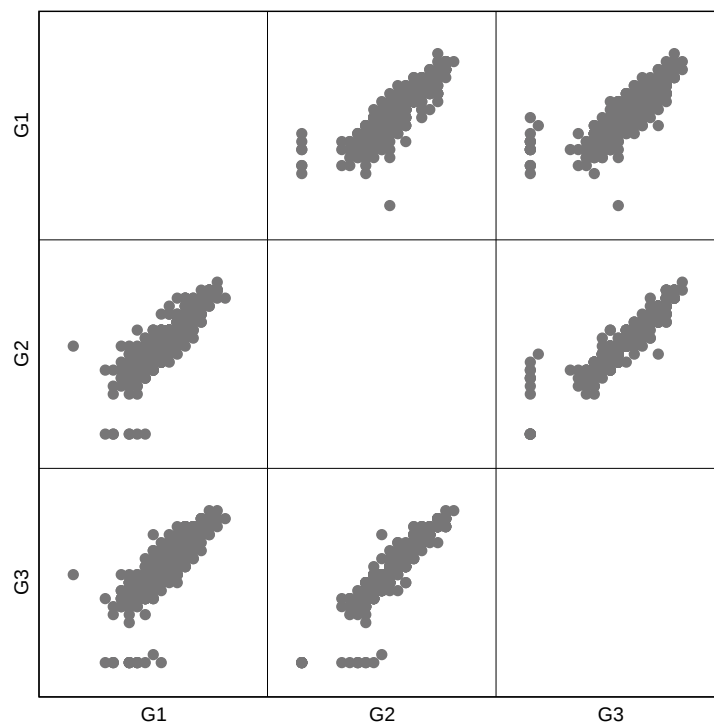
161 0 M> GRAPH /SCATTERPLOT(MATRIX)=G1 G2 G3.

Graph

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

Notes

Output Created		16-JUL-2026 21:12:34
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\dataset.csv
	Active Dataset	IntraclassCorrelationCoeffi cientData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT (MATRIX)=G1 G2 G3.
Resources	Processor Time	00:00:01.98
	Elapsed Time	00:00:00.74



Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

```

162 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
162 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
163 0
163 0 M>
164 0 SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\SPSS_Output\sav\intraclass-correlation-coefficient_spss_ready_data.sav' /COMPRESSED.
164 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Intraclass Correlation Coefficient\SPSS_Output\sav\intraclass-correlation-coefficient_spss_ready_data.sav' /COMPRESSED
.
165 0
165 0 M>
166 0 ECHO '=====
====='.
166 0 M> ECHO '=====
====='.
=====
167 0 ECHO 'INTRACCLASS CORRELATION COEFFICIENT ICC(2,K)'.
167 0 M> ECHO 'INTRACCLASS CORRELATION COEFFICIENT ICC(2,K)'.
INTRACCLASS CORRELATION COEFFICIENT ICC(2,K)
168 0 ECHO 'Design: Two-way random-effects absolute agreement for the mean of all three grade ratings.'.
168 0 M> ECHO 'Design: Two-way random-effects absolute agreement for the mean of all three grade ratings.'.
Design: Two-way random-effects absolute agreement for the mean of all three grade ratings.
169 0 ECHO 'Null hypothesis: The average-measure absolute-agreement ICC is zero.'.
169 0 M> ECHO 'Null hypothesis: The average-measure absolute-agreement ICC is zero.'.
Null hypothesis: The average-measure absolute-agreement ICC is zero.
170 0 ECHO 'Formula:  $ICC(2,k) = (MSR - MSE) / [MSR + (MSC - MSE) / n]$ '.
170 0 M> ECHO 'Formula:  $ICC(2,k) = (MSR - MSE) / [MSR + (MSC - MSE) / n]$ '.
Formula:  $ICC(2,k) = (MSR - MSE) / [MSR + (MSC - MSE) / n]$ .
171 0 ECHO 'Variables: G1, G2, G3'.
171 0 M> ECHO 'Variables: G1, G2, G3'.
Variables: G1, G2, G3
172 0 ECHO 'Rows analyzed: 649'.

```

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

```
172 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
173 0 ECHO 'f_statistic = 20.245973021325074'.
173 0 M> ECHO 'f_statistic = 20.245973021325074'.
f_statistic = 20.245973021325074
174 0 ECHO 'icc_2_k = 0.9480614162291533'.
174 0 M> ECHO 'icc_2_k = 0.9480614162291533'.
icc_2_k = 0.9480614162291533
175 0 ECHO 'p_value = 0.0'.
175 0 M> ECHO 'p_value = 0.0'.
p_value = 0.0
176 0 ECHO 'raters = 3'.
176 0 M> ECHO 'raters = 3'.
raters = 3
177 0 ECHO 'targets = 649'.
177 0 M> ECHO 'targets = 649'.
targets = 649
178 0 ECHO 'f_statistic = 20.245973021325074'.
178 0 M> ECHO 'f_statistic = 20.245973021325074'.
f_statistic = 20.245973021325074
179 0 ECHO 'icc_2_k = 0.9480614162291533'.
179 0 M> ECHO 'icc_2_k = 0.9480614162291533'.
icc_2_k = 0.9480614162291533
180 0 ECHO 'p_value = 0.0'.
180 0 M> ECHO 'p_value = 0.0'.
p_value = 0.0
181 0 ECHO 'raters = 3'.
181 0 M> ECHO 'raters = 3'.
raters = 3
182 0 ECHO 'targets = 649'.
182 0 M> ECHO 'targets = 649'.
targets = 649
183 0 ECHO 'Cross-check status: pass'.
183 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
184 0 ECHO '=====
====='.
184 0 M> ECHO '=====
====='.
=====',
```

Intraclass Correlation Coefficient ICC Two K
Two-way random average-measure absolute agreement for three

```
=====
185  0
185  0 M>
186  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tes
ts\Intraclass Correlation Coefficient\SPSS_Output\spv\
      intraclass-correlation-coefficient_spss_output.spv'.
186  0 M>  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement
Tests\Intraclass Correlation Coefficient\SPSS_Output\s
      pv\intraclass-correlation-coefficient_spss_output.spv'.
187  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
187  0 M>  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```