

```
196 0 OUTPUT ACTIVATE CorrectedItemTotalCorrelationOutput.  
196 0 M> OUTPUT ACTIVATE CorrectedItemTotalCorrelationOutput.  
197 0 TITLE 'Corrected Item-Total Correlation'.  
197 0 M> TITLE 'Corrected Item-Total Correlation'.
```

Corrected Item-Total Correlation

```

198 0
198 0 M>
199 0 GET DATA
199 0 M> GET DATA
200 0 /TYPE=TXT
200 0 M> /TYPE=TXT
201 0 /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Corrected
Item Total Correlation\dataset.csv'
201 0 M> /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Correc
ted Item Total Correlation\dataset.csv'
202 0 /ENCODING='UTF8'
202 0 M> /ENCODING='UTF8'
203 0 /DELCASE=LINE
203 0 M> /DELCASE=LINE
204 0 /DELIMITERS=', '
204 0 M> /DELIMITERS=', '
205 0 /QUALIFIER='''
205 0 M> /QUALIFIER='''
206 0 /ARRANGEMENT=DELIMITED
206 0 M> /ARRANGEMENT=DELIMITED
207 0 /FIRSTCASE=2
207 0 M> /FIRSTCASE=2
208 0 /VARIABLES=
208 0 M> /VARIABLES=
209 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
209 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
210 0 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
210 0 M> Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
211 0 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
A8
211 0 M> traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 fams
up A8
212 0 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A
8
212 0 M> paid A8 activities A8 nursery A8 higher A8 internet A8 romanti
c A8
213 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0

```

Corrected Item-Total Correlation

```

213 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
214 0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
214 0 M> absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
215 0 DATASET NAME CorrectedItemTotalCorrelationData.
215 0 M> DATASET NAME CorrectedItemTotalCorrelationData.
216 0 EXECUTE.
216 0 M> EXECUTE.
217 0
217 0 M>
218 0 COMPUTE subject_id=$CASENUM.
218 0 M> COMPUTE subject_id=$CASENUM.
219 0 COMPUTE Dalc_R=6-Dalc.
219 0 M> COMPUTE Dalc_R=6-Dalc.
220 0 COMPUTE Walc_R=6-Walc.
220 0 M> COMPUTE Walc_R=6-Walc.
221 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
221 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
222 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
222 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
223 0 RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
223 0 M> RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
224 0 INTO G1_cat3 G2_cat3 G3_cat3.
224 0 M> INTO G1_cat3 G2_cat3 G3_cat3.
225 0 RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
225 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)
226 0 INTO G1_cat5 G3_cat5.
226 0 M> INTO G1_cat5 G3_cat5.
227 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).
227 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).

```

Corrected Item-Total Correlation

```
228 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).
228 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).
229 0 EXECUTE.
229 0 M> EXECUTE.
230 0
230 0 M>
231 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
231 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
232 0 TITLE 'Corrected Item Total Correlation'.
232 0 M> TITLE 'Corrected Item Total Correlation'.
```

Corrected Item Total Correlation

```
233 0 SUBTITLE 'Each item correlated with a total that excludes that item'.  
233 0 M> SUBTITLE 'Each item correlated with a total that excludes that item'.  
m'.
```

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

```

234 0 RELIABILITY /VARIABLES=famrel freetime goout Dalc_R Walc_R health
234 0 M> RELIABILITY /VARIABLES=famrel freetime goout Dalc_R Walc_R health
235 0 /SCALE('Six transformed items') ALL /MODEL=ALPHA
235 0 M> /SCALE('Six transformed items') ALL /MODEL=ALPHA
236 0 /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL.
236 0 M> /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		16-JUL-2026 21:08:42
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Corrected Item Total Correlation\dataset.csv
	Active Dataset	CorrectedItemTotalCorrelationData
	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\Corrected Item Total Correlation\corrected_item_total_correlation_spss_syntax.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.

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Notes

Syntax		RELIABILITY /VARIABLES=famrel freetime goout Dalc_R Walc_R health /SCALE('Six transformed items') ALL /MODEL=ALPHA /STATISTICS=DESCRIPT IVE SCALE CORR /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.22
	Elapsed Time	00:00:00.36

[CorrectedItemTotalCorrelationData]

Scale: Six transformed items

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
.112	.169	6

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Item Statistics

	Mean	Std. Deviation	N
famrel	3.9307	.95572	649
freetime	3.1803	1.05109	649
goout	3.1849	1.17577	649
Dalc_R	4.4977	.92483	649
Walc_R	3.7196	1.28438	649
health	3.5362	1.44626	649

Inter-Item Correlation Matrix

	famrel	freetime	goout	Dalc_R	Walc_R	health
famrel	1.000	.129	.090	.076	.094	.110
freetime	.129	1.000	.346	-.110	-.120	.085
goout	.090	.346	1.000	-.245	-.389	-.016
Dalc_R	.076	-.110	-.245	1.000	.617	-.059
Walc_R	.094	-.120	-.389	.617	1.000	-.115
health	.110	.085	-.016	-.059	-.115	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
famrel	18.1186	6.778	.227	.053	-.056 ^a
freetime	18.8690	6.879	.151	.138	-.002 ^a
goout	18.8644	8.139	-.105	.258	.234
Dalc_R	17.5516	7.269	.139	.382	.022
Walc_R	18.3297	7.400	-.033	.456	.178
health	18.5131	6.806	-.010	.042	.165

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
22.0493	8.819	2.96960	6

```

237  0  COMPUTE cit_famrel=freetime+goout+Dalc_R+Walc_R+health.
237  0 M> COMPUTE cit_famrel=freetime+goout+Dalc_R+Walc_R+health.
238  0  COMPUTE cit_freetime=famrel+goout+Dalc_R+Walc_R+health.
238  0 M> COMPUTE cit_freetime=famrel+goout+Dalc_R+Walc_R+health.
239  0  COMPUTE cit_goout=famrel+freetime+Dalc_R+Walc_R+health.
239  0 M> COMPUTE cit_goout=famrel+freetime+Dalc_R+Walc_R+health.
240  0  CORRELATIONS /VARIABLES=famrel cit_famrel freetime cit_freetime goout
cit_goout /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
240  0 M> CORRELATIONS /VARIABLES=famrel cit_famrel freetime cit_freetime go
out cit_goout /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.

```

Correlations

Notes

Output Created		16-JUL-2026 21:08:42
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Corrected Item Total Correlation\dataset.csv
	Active Dataset	CorrectedItemTotalCorrelationData
	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.

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Notes

Syntax		CORRELATIONS /VARIABLES=famrel cit_famrel freetime cit_freetime goout cit_goout /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.09

Correlations

		famrel	cit_famrel	freetime	cit_freetime	goout
famrel	Pearson Correlation	1	.227**	.129**	.538**	.090*
	Sig. (2-tailed)		.000	.001	.000	.022
	N	649	649	649	649	649
cit_famrel	Pearson Correlation	.227**	1	.509**	.871**	.304**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	649	649	649	649	649
freetime	Pearson Correlation	.129**	.509**	1	.151**	.346**
	Sig. (2-tailed)	.001	.000		.000	.000
	N	649	649	649	649	649
cit_freetime	Pearson Correlation	.538**	.871**	.151**	1	.196**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	649	649	649	649	649
goout	Pearson Correlation	.090*	.304**	.346**	.196**	1
	Sig. (2-tailed)	.022	.000	.000	.000	
	N	649	649	649	649	649
cit_goout	Pearson Correlation	.505**	.863**	.365**	.895**	-.105**
	Sig. (2-tailed)	.000	.000	.000	.000	.008
	N	649	649	649	649	649

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Correlations

		cit_goout
famrel	Pearson Correlation	.505**
	Sig. (2-tailed)	.000
	N	649
cit_famrel	Pearson Correlation	.863**
	Sig. (2-tailed)	.000
	N	649
freetime	Pearson Correlation	.365**
	Sig. (2-tailed)	.000
	N	649
cit_freetime	Pearson Correlation	.895**
	Sig. (2-tailed)	.000
	N	649
goout	Pearson Correlation	-.105**
	Sig. (2-tailed)	.008
	N	649
cit_goout	Pearson Correlation	1
	Sig. (2-tailed)	
	N	649

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

* . Correlation is significant at the 0.05 level (2-tailed).

```
241 0 DESCRIPTIVES VARIABLES=famrel freetime goout Dalc_R Walc_R health /ST
ATISTICS=MEAN STDDEV MIN MAX.
```

```
241 0 M> DESCRIPTIVES VARIABLES=famrel freetime goout Dalc_R Walc_R health
/STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

Notes

Output Created		16-JUL-2026 21:08:43
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Corrected Item Total Correlation\dataset.csv
	Active Dataset	CorrectedItemTotalCorrelationData
	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=famrel freetime goout Dalc_R Walc_R health /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.08

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
famrel	649	1	5	3.93	.956
freetime	649	1	5	3.18	1.051
goout	649	1	5	3.18	1.176
Dalc_R	649	1.00	5.00	4.4977	.92483
Walc_R	649	1.00	5.00	3.7196	1.28438
health	649	1	5	3.54	1.446
Valid N (listwise)	649				

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

```

242 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
242 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
243 0
243 0 M>
244 0 SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Corr
ected Item Total Correlation\SPSS_Output\sav\corrected
      -item-total-correlation_spss_ready_data.sav' /COMPRESSED.
244 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\C
orrected Item Total Correlation\SPSS_Output\sav\correc
      ted-item-total-correlation_spss_ready_data.sav' /COMPRESSED.

245 0
245 0 M>
246 0 ECHO '=====
====='.
246 0 M> ECHO '=====
====='.
=====
247 0 ECHO 'CORRECTED ITEM-TOTAL CORRELATION'.
247 0 M> ECHO 'CORRECTED ITEM-TOTAL CORRELATION'.
CORRECTED ITEM-TOTAL CORRELATION
248 0 ECHO 'Design: Each transformed scale item correlated with the sum of
the other five items.'.
248 0 M> ECHO 'Design: Each transformed scale item correlated with the sum
of the other five items.'.
Design: Each transformed scale item correlated with the sum of the other five
items.
249 0 ECHO 'Null hypothesis: An item has zero linear association with the s
cale score excluding itself.'.
249 0 M> ECHO 'Null hypothesis: An item has zero linear association with th
e scale score excluding itself.'.
Null hypothesis: An item has zero linear association with the scale score excl
uding itself.
250 0 ECHO 'Formula: r_i,corrected=cor(X_i, sum_{j != i} X_j)'.
250 0 M> ECHO 'Formula: r_i,corrected=cor(X_i, sum_{j != i} X_j)'.
Formula: r_i,corrected=cor(X_i, sum_{j != i} X_j).
251 0 ECHO 'Variables: famrel, freetime, goout, Dalc_R, Walc_R, health'.
251 0 M> ECHO 'Variables: famrel, freetime, goout, Dalc_R, Walc_R, health'.
Variables: famrel, freetime, goout, Dalc_R, Walc_R, health
252 0 ECHO 'Rows analyzed: 649'.

```

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

```
252  0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
253  0 ECHO 'items = 6'.
253  0 M> ECHO 'items = 6'.
items = 6
254  0 ECHO 'maximum_corrected_r = 0.22659733045787755'.
254  0 M> ECHO 'maximum_corrected_r = 0.22659733045787755'.
maximum_corrected_r = 0.22659733045787755
255  0 ECHO 'mean_corrected_r = 0.06145259803842871'.
255  0 M> ECHO 'mean_corrected_r = 0.06145259803842871'.
mean_corrected_r = 0.06145259803842871
256  0 ECHO 'minimum_corrected_r = -0.10476993802912485'.
256  0 M> ECHO 'minimum_corrected_r = -0.10476993802912485'.
minimum_corrected_r = -0.10476993802912485
257  0 ECHO 'items = 6'.
257  0 M> ECHO 'items = 6'.
items = 6
258  0 ECHO 'maximum_corrected_r = 0.22659733045787755'.
258  0 M> ECHO 'maximum_corrected_r = 0.22659733045787755'.
maximum_corrected_r = 0.22659733045787755
259  0 ECHO 'mean_corrected_r = 0.06145259803842871'.
259  0 M> ECHO 'mean_corrected_r = 0.06145259803842871'.
mean_corrected_r = 0.06145259803842871
260  0 ECHO 'minimum_corrected_r = -0.10476993802912485'.
260  0 M> ECHO 'minimum_corrected_r = -0.10476993802912485'.
minimum_corrected_r = -0.10476993802912485
261  0 ECHO 'Cross-check status: pass'.
261  0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
262  0 ECHO '=====
====='.
262  0 M> ECHO '=====
====='.
=====
263  0
263  0 M>
264  0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tes
ts\Corrected Item Total Correlation\SPSS_Output\spv\co
rrected-item-total-correlation_spss_output.spv'.
```

Corrected Item Total Correlation
Each item correlated with a total that excludes that item

```
264  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement
Tests\Corrected Item Total Correlation\SPSS_Output\spv
        \corrected-item-total-correlation_spss_output.spv'.
265  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
265  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```