

```
1571 0 OUTPUT ACTIVATE SplitHalfReliabilityOutput.  
1571 0 M> OUTPUT ACTIVATE SplitHalfReliabilityOutput.  
1572 0 TITLE 'Odd-Even Split-Half Reliability'.  
1572 0 M> TITLE 'Odd-Even Split-Half Reliability'.
```

Odd-Even Split-Half Reliability

```

1573 0
1573 0 M>
1574 0 GET DATA
1574 0 M> GET DATA
1575 0 /TYPE=TXT
1575 0 M> /TYPE=TXT
1576 0 /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Hal
f Reliability\dataset.csv'
1576 0 M> /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split
Half Reliability\dataset.csv'
1577 0 /ENCODING='UTF8'
1577 0 M> /ENCODING='UTF8'
1578 0 /DELCASE=LINE
1578 0 M> /DELCASE=LINE
1579 0 /DELIMITERS=', '
1579 0 M> /DELIMITERS=', '
1580 0 /QUALIFIER='''
1580 0 M> /QUALIFIER='''
1581 0 /ARRANGEMENT=DELIMITED
1581 0 M> /ARRANGEMENT=DELIMITED
1582 0 /FIRSTCASE=2
1582 0 M> /FIRSTCASE=2
1583 0 /VARIABLES=
1583 0 M> /VARIABLES=
1584 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
1584 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
1585 0 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
1585 0 M> Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
1586 0 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
A8
1586 0 M> traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 fams
up A8
1587 0 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A
8
1587 0 M> paid A8 activities A8 nursery A8 higher A8 internet A8 romanti
c A8
1588 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0

```

Odd-Even Split-Half Reliability

```

1588 0 M>      famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
1589 0      absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
1589 0 M>      absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
1590 0 DATASET NAME SplitHalfReliabilityData.
1590 0 M> DATASET NAME SplitHalfReliabilityData.
1591 0 EXECUTE.
1591 0 M> EXECUTE.
1592 0
1592 0 M>
1593 0 COMPUTE subject_id=$CASENUM.
1593 0 M> COMPUTE subject_id=$CASENUM.
1594 0 COMPUTE Dalc_R=6-Dalc.
1594 0 M> COMPUTE Dalc_R=6-Dalc.
1595 0 COMPUTE Walc_R=6-Walc.
1595 0 M> COMPUTE Walc_R=6-Walc.
1596 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
1596 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
1597 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
1597 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
1598 0 RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
1598 0 M> RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
1599 0 INTO G1_cat3 G2_cat3 G3_cat3.
1599 0 M> INTO G1_cat3 G2_cat3 G3_cat3.
1600 0 RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
1600 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)
1601 0 INTO G1_cat5 G3_cat5.
1601 0 M> INTO G1_cat5 G3_cat5.
1602 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).
1602 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).

```

Odd-Even Split-Half Reliability

```
1603 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).
1603 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).
1604 0 EXECUTE.
1604 0 M> EXECUTE.
1605 0
1605 0 M>
1606 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1606 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1607 0 TITLE 'Split Half Reliability'.
1607 0 M> TITLE 'Split Half Reliability'.
```

Split Half Reliability

```
1608 0 SUBTITLE 'Fixed three-item halves with Spearman-Brown and Guttman lambda four'.
```

```
1608 0 M> SUBTITLE 'Fixed three-item halves with Spearman-Brown and Guttman lambda four'.
```

```
>Warning # 2004 on line 1608. Command name: SUBTITLE
```

```
>The subtitle given exceeds 60 characters in length. The first 60 characters  
>will be used.
```

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

```

1609  0  RELIABILITY /VARIABLES=famrel goout Walc_R freetime Dalc_R health
1609  0 M> RELIABILITY /VARIABLES=famrel goout Walc_R freetime Dalc_R health
1610  0  /SCALE('Fixed split') ALL /MODEL=SPLIT(3)
1610  0 M> /SCALE('Fixed split') ALL /MODEL=SPLIT(3)
1611  0  /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL MEANS VARIANCE COR
R.
1611  0 M> /STATISTICS=DESCRIPTIVE SCALE CORR /SUMMARY=TOTAL MEANS VARIANCE
CORR.

```

Reliability

Notes

Output Created		16-JUL-2026 21:10:43
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\dataset.csv
	Active Dataset	SplitHalfReliabilityData
	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\Split Half Reliability\split_half_reliability_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.

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

Notes

Syntax		RELIABILITY /VARIABLES=famrel goout Walc_R freetime Dalc_R health /SCALE('Fixed split') ALL /MODEL=SPLIT(3) /STATISTICS=DESCRIPT IVE SCALE CORR /SUMMARY=TOTAL MEANS VARIANCE CORR.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

[SplitHalfReliabilityData]

Scale: Fixed split

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.

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

Reliability Statistics

Cronbach's Alpha	Part 1	Value	-.348 ^a
		N of Items	3 ^b
	Part 2	Value	-.044 ^a
		N of Items	3 ^c
	Total N of Items		6
Correlation Between Forms			.236
Spearman-Brown Coefficient	Equal Length		.382
	Unequal Length		.382
Guttman Split-Half Coefficient			.381

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.

b. The items are: famrel, goout, Walc_R.

c. The items are: freetime, Dalc_R, health.

Item Statistics

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

Inter-Item Correlation Matrix

	famrel	goout	Walc_R	freetime	Dalc_R	health
famrel	1.000	.090	.094	.129	.076	.110
goout	.090	1.000	-.389	.346	-.245	-.016
Walc_R	.094	-.389	1.000	-.120	.617	-.115
freetime	.129	.346	-.120	1.000	-.110	.085
Dalc_R	.076	-.245	.617	-.110	1.000	-.059
health	.110	-.016	-.115	.085	-.059	1.000

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

Summary Item Statistics

		Mean	Minimum	Maximum	Range	Maximum / Minimum
Item Means	Part 1	3.612	3.185	3.931	.746	1.234
	Part 2	3.738	3.180	4.498	1.317	1.414
	Both Parts	3.675	3.180	4.498	1.317	1.414
Item Variances	Part 1	1.315	.913	1.650	.736	1.806
	Part 2	1.351	.855	2.092	1.236	2.445
	Both Parts	1.333	.855	2.092	1.236	2.445
Inter-Item Correlations	Part 1	-.068	-.389	.094	.482	-.241
	Part 2	-.028	-.110	.085	.194	-.769
	Both Parts	.033	-.389	.617	1.005	-1.586

Summary Item Statistics

		Variance	N of Items
Item Means	Part 1	.148	3 ^a
	Part 2	.464	3 ^b
	Both Parts	.250	6
Item Variances	Part 1	.139	3 ^a
	Part 2	.427	3 ^b
	Both Parts	.227	6
Inter-Item Correlations	Part 1	.062	3 ^a
	Part 2	.008	3 ^b
	Both Parts	.055	6

a. The items are: famrel, goout, Walc_R.

b. The items are: freetime, Dalc_R, health.

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

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
goout	18.8644	8.139	-.105	.258	.234
Walc_R	18.3297	7.400	-.033	.456	.178
freetime	18.8690	6.879	.151	.138	-.002 ^a
Dalc_R	17.5516	7.269	.139	.382	.022
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.

Scale Statistics

	Mean	Variance	Std. Deviation	N of Items
Part 1	10.8351	3.203	1.78961	3 ^a
Part 2	11.2142	3.937	1.98421	3 ^b
Both Parts	22.0493	8.819	2.96960	6

a. The items are: famrel, goout, Walc_R.

b. The items are: freetime, Dalc_R, health.

```

1612  0  COMPUTE half_A=SUM(famrel,goout,Walc_R).
1612  0  M>  COMPUTE half_A=SUM(famrel,goout,Walc_R).
1613  0  COMPUTE half_B=SUM(freetime,Dalc_R,health).
1613  0  M>  COMPUTE half_B=SUM(freetime,Dalc_R,health).
1614  0  CORRELATIONS /VARIABLES=half_A half_B /PRINT=TWOTAIL NOSIG /MISSING=P
AIRWISE.
1614  0  M>  CORRELATIONS /VARIABLES=half_A half_B /PRINT=TWOTAIL NOSIG /MISSIN
G=PAIRWISE.

```

Correlations

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

Notes

Output Created		16-JUL-2026 21:10:43
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\dataset.csv
	Active Dataset	SplitHalfReliabilityData
	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=half_A half_B /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Correlations

		half_A	half_B
half_A	Pearson Correlation	1	.236**
	Sig. (2-tailed)		.000
	N	649	649
half_B	Pearson Correlation	.236**	1
	Sig. (2-tailed)	.000	
	N	649	649

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

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

```
1615  0  DESCRIPTIVES VARIABLES=half_A half_B /STATISTICS=MEAN STDDEV VARIANCE
      MIN MAX.
1615  0 M> DESCRIPTIVES VARIABLES=half_A half_B /STATISTICS=MEAN STDDEV VARIA
      NCE MIN MAX.
```

Descriptives

Notes

Output Created		16-JUL-2026 21:10:43
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\dataset.csv
	Active Dataset	SplitHalfReliabilityData
	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=half_A half_B /STATISTICS=MEAN STDDEV VARIANCE MIN ...
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
half_A	649	3.00	15.00	10.8351	1.78961	3.203
half_B	649	3.00	15.00	11.2142	1.98421	3.937
Valid N (listwise)	649					

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

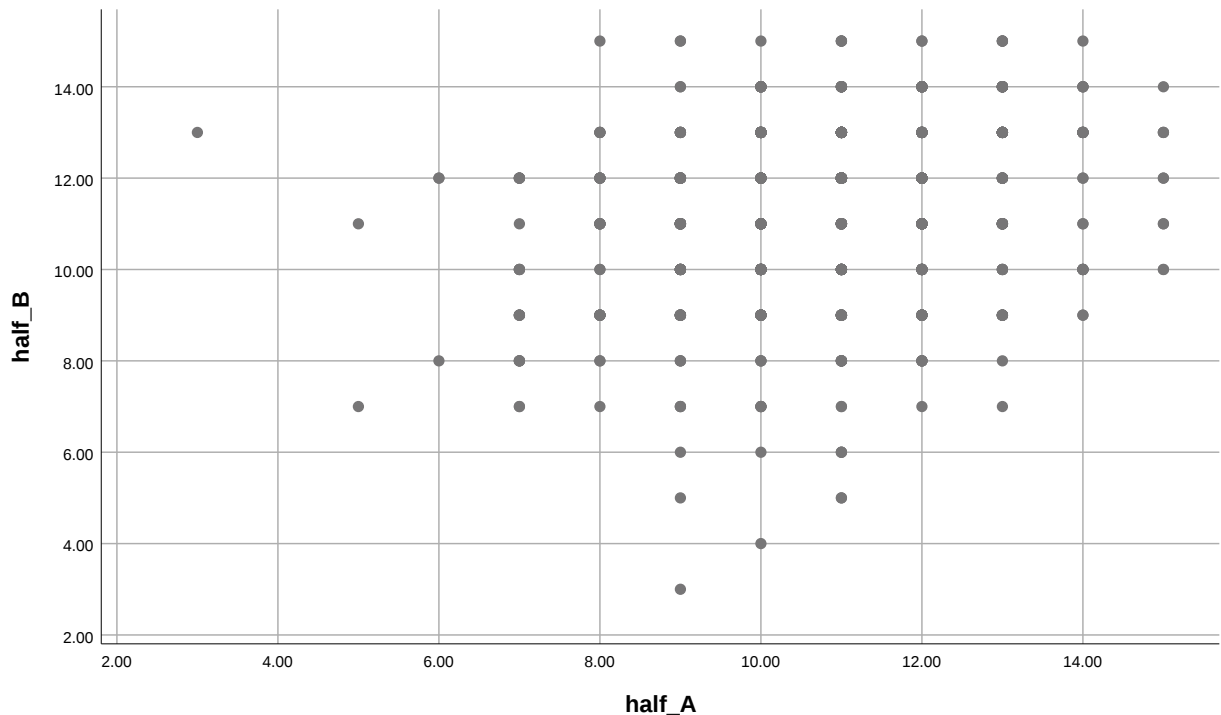
```
1616 0 GRAPH /SCATTERPLOT(BIVAR)=half_A WITH half_B.
1616 0 M> GRAPH /SCATTERPLOT(BIVAR)=half_A WITH half_B.
```

Graph

Notes

Output Created		16-JUL-2026 21:10:43
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\dataset.csv
	Active Dataset	SplitHalfReliabilityData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT (BIVAR)=half_A WITH half_B.
Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:00.16

Split Half Reliability Fixed three-item halves with Spearman-Brown and Guttman lamb



```

1617 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
1617 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
1618 0
1618 0 M>
1619 0 SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\SPSS_Output\sav\split-half-reliability_spss_ready_data.sav' /COMPRESSED.
1619 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Split Half Reliability\SPSS_Output\sav\split-half-reliability_spss_ready_data.sav' /COMPRESSED.
1620 0
1620 0 M>
1621 0 ECHO '=====
====='.
1621 0 M> ECHO '=====
====='.
=====
1622 0 ECHO 'ODD-EVEN SPLIT-HALF RELIABILITY'.
1622 0 M> ECHO 'ODD-EVEN SPLIT-HALF RELIABILITY'.
ODD-EVEN SPLIT-HALF RELIABILITY

```

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

```
1623 0 ECHO 'Design: A fixed balanced split of the six transformed items into two three-item half scores.'.
1623 0 M> ECHO 'Design: A fixed balanced split of the six transformed items into two three-item half scores.'.
Design: A fixed balanced split of the six transformed items into two three-item half scores.
1624 0 ECHO 'Null hypothesis: The two fixed half scores are uncorrelated and have no full-length reliability.'.
1624 0 M> ECHO 'Null hypothesis: The two fixed half scores are uncorrelated and have no full-length reliability.'.
Null hypothesis: The two fixed half scores are uncorrelated and have no full-length reliability.
1625 0 ECHO 'Formula: r_half=cor(H_A,H_B); rho_SB=2r/(1+r); lambda_4=2[1-(s_A^2+s_B^2)/s_total^2].'.
1625 0 M> ECHO 'Formula: r_half=cor(H_A,H_B); rho_SB=2r/(1+r); lambda_4=2[1-(s_A^2+s_B^2)/s_total^2].'.
Formula: r_half=cor(H_A,H_B); rho_SB=2r/(1+r); lambda_4=2[1-(s_A^2+s_B^2)/s_total^2].
1626 0 ECHO 'Variables: half A: famrel, goout, Walc_R, half B: freetime, Dalc_R, health'.
1626 0 M> ECHO 'Variables: half A: famrel, goout, Walc_R, half B: freetime, Dalc_R, health'.
Variables: half A: famrel, goout, Walc_R, half B: freetime, Dalc_R, health
1627 0 ECHO 'Rows analyzed: 649'.
1627 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
1628 0 ECHO 'guttman_lambda_4 = 0.380732663549638'.
1628 0 M> ECHO 'guttman_lambda_4 = 0.380732663549638'.
guttman_lambda_4 = 0.380732663549638
1629 0 ECHO 'half_correlation = 0.23638019152351483'.
1629 0 M> ECHO 'half_correlation = 0.23638019152351483'.
half_correlation = 0.23638019152351483
1630 0 ECHO 'items_per_half = 3'.
1630 0 M> ECHO 'items_per_half = 3'.
items_per_half = 3
1631 0 ECHO 'n_cases = 649'.
1631 0 M> ECHO 'n_cases = 649'.
n_cases = 649
1632 0 ECHO 'spearman_brown_corrected = 0.3823746015086802'.
```

Split Half Reliability
Fixed three-item halves with Spearman-Brown and Guttman lamb

```
1632  0 M> ECHO 'spearman_brown_corrected = 0.3823746015086802'.
spearman_brown_corrected = 0.3823746015086802
1633  0 ECHO 'guttman_lambda_4 = 0.380732663549638'.
1633  0 M> ECHO 'guttman_lambda_4 = 0.380732663549638'.
guttman_lambda_4 = 0.380732663549638
1634  0 ECHO 'half_correlation = 0.23638019152351483'.
1634  0 M> ECHO 'half_correlation = 0.23638019152351483'.
half_correlation = 0.23638019152351483
1635  0 ECHO 'items_per_half = 3'.
1635  0 M> ECHO 'items_per_half = 3'.
items_per_half = 3
1636  0 ECHO 'n_cases = 649'.
1636  0 M> ECHO 'n_cases = 649'.
n_cases = 649
1637  0 ECHO 'spearman_brown_corrected = 0.3823746015086802'.
1637  0 M> ECHO 'spearman_brown_corrected = 0.3823746015086802'.
spearman_brown_corrected = 0.3823746015086802
1638  0 ECHO 'Cross-check status: pass'.
1638  0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
1639  0 ECHO '=====
====='.
1639  0 M> ECHO '=====
====='.
=====
1640  0
1640  0 M>
1641  0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tes
ts\Split Half Reliability\SPSS_Output\spv\split-half-r
eliability_spss_output.spv'.
1641  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement
Tests\Split Half Reliability\SPSS_Output\spv\split-hal
f-reliability_spss_output.spv'.
1642  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
1642  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```