

```
428 0 OUTPUT ACTIVATE FriedmanTestforLikertDataOutput.  
428 0 M> OUTPUT ACTIVATE FriedmanTestforLikertDataOutput.  
429 0 TITLE 'Friedman Test for Likert Data'.  
429 0 M> TITLE 'Friedman Test for Likert Data'.
```

Friedman Test for Likert Data

```

430 0
430 0 M>
431 0 GET DATA
431 0 M> GET DATA
432 0 /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis
\Friedman Test for Likert Data\dataset.csv' /ENCODING=
      'UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
432 0 M> /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Friedman Test for Likert Data\dataset.csv' /ENCODI
      NG='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
433 0 /ARRANGEMENT=DELIMITED /FIRSTCASE=2
433 0 M> /ARRANGEMENT=DELIMITED /FIRSTCASE=2
434 0 /VARIABLES=
434 0 M> /VARIABLES=
435 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0
Fedu F8.0
435 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F
8.0 Fedu F8.0
436 0 Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime
F8.0 failures F8.0
436 0 M> Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studyti
me F8.0 failures F8.0
437 0 schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 in
ternet A8 romantic A8
437 0 M> schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8
internet A8 romantic A8
438 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
438 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
439 0 DATASET NAME FriedmanTestforLikertDataData.
439 0 M> DATASET NAME FriedmanTestforLikertDataData.
440 0 COMPUTE subject_id=$CASENUM.
440 0 M> COMPUTE subject_id=$CASENUM.
441 0 COMPUTE Dalc_R=6-Dalc.
441 0 M> COMPUTE Dalc_R=6-Dalc.
442 0 COMPUTE Walc_R=6-Walc.
442 0 M> COMPUTE Walc_R=6-Walc.

```

Friedman Test for Likert Data

```
443 0 COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,health
).
443 0 M> COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,hea
lth).
444 0 RECODE sex ('F'=1) ('M'=2) INTO sex_code.
444 0 M> RECODE sex ('F'=1) ('M'=2) INTO sex_code.
445 0 RECODE school ('GP'=1) ('MS'=2) INTO school_code.
445 0 M> RECODE school ('GP'=1) ('MS'=2) INTO school_code.
446 0 RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code internet_c
ode.
446 0 M> RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code interne
t_code.
447 0 EXECUTE.
447 0 M> EXECUTE.
448 0
448 0 M>
449 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
449 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
450 0 TITLE 'Friedman Test for Likert Data'.
450 0 M> TITLE 'Friedman Test for Likert Data'.
```

Friedman Test for Likert Data

```
451 0 SUBTITLE 'Within-respondent comparison of famrel freetime and goout'.  
451 0 M> SUBTITLE 'Within-respondent comparison of famrel freetime and goou  
t'.
```

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

```
452 0 NPAR TESTS /FRIEDMAN=famrel freetime goout /MISSING ANALYSIS.
452 0 M> NPAR TESTS /FRIEDMAN=famrel freetime goout /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		18-JUL-2026 13:21:12
Comments		
Input	Data	D:\DATA ANALYSIS\IM Survey and Likert Scale Analysis\Friedman Test for Likert Data\dataset.csv
	Active Dataset	FriedmanTestforLikertData Data
	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 test are based on all cases with valid data for the variable (s) used in that test.
Syntax		NPAR TESTS /FRIEDMAN=famrel freetime goout /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03
	Number of Cases Allowed ^a	393216

a. Based on availability of workspace memory.

[FriedmanTestforLikertDataData]

Friedman Test

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

Ranks

	Mean Rank
famrel	2.42
freetime	1.78
goout	1.80

Test Statistics^a

N	649
Chi-Square	224.052
df	2
Asymp. Sig.	.000

a. Friedman Test

```
453 0 DESCRIPTIVES VARIABLES=famrel freetime goout /STATISTICS=MEAN STDDEV
MIN MAX.
453 0 M> DESCRIPTIVES VARIABLES=famrel freetime goout /STATISTICS=MEAN STDD
EV MIN MAX.
```

Descriptives

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

Notes

Output Created		18-JUL-2026 13:21:12
Comments		
Input	Data	D:\DATA ANALYSIS\IM Survey and Likert Scale Analysis\Friedman Test for Likert Data\dataset.csv
	Active Dataset	FriedmanTestforLikertData Data
	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 /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

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
Valid N (listwise)	649				

454 0 ECHO 'Friedman supplies the repeated-rank statistic and Kendall W effect magnitude'.

454 0 M> ECHO 'Friedman supplies the repeated-rank statistic and Kendall W effect magnitude'.

Friedman supplies the repeated-rank statistic and Kendall W effect magnitude

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

```

455 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
455 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
456 0
456 0 M>
457 0 SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Fri
edman Test for Likert Data\SPSS_Output\sav\friedman-te
st-for-likert-data_spss_ready_data.sav' /COMPRESSED.
457 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Fri
edman Test for Likert Data\SPSS_Output\sav\friedman
-test-for-likert-data_spss_ready_data.sav' /COMPRESSED.

458 0
458 0 M>
459 0 ECHO '=====
====='.
459 0 M> ECHO '=====
====='.
=====
460 0 ECHO 'FRIEDMAN TEST FOR LIKERT DATA'.
460 0 M> ECHO 'FRIEDMAN TEST FOR LIKERT DATA'.
FRIEDMAN TEST FOR LIKERT DATA
461 0 ECHO 'Method type: hypothesis_test'.
461 0 M> ECHO 'Method type: hypothesis_test'.
Method type: hypothesis_test
462 0 ECHO 'Design: Within-respondent comparison of three related ordered s
ocial-response items.'.
462 0 M> ECHO 'Design: Within-respondent comparison of three related orde
red social-response items.'.
Design: Within-respondent comparison of three related ordered social-response
items.
463 0 ECHO 'Inference scope: H0: the three related item distributions have
equal location/rank profiles.'.
463 0 M> ECHO 'Inference scope: H0: the three related item distributions ha
ve equal location/rank profiles.'.
Inference scope: H0: the three related item distributions have equal location/
rank profiles.
464 0 ECHO 'Formula:  $Q = [12 / (n * k * (k + 1))] * \sum (R_j^2) - 3 * n * (k + 1); W = Q / [n * (k - 1)]$ 
.'.
464 0 M> ECHO 'Formula:  $Q = [12 / (n * k * (k + 1))] * \sum (R_j^2) - 3 * n * (k + 1); W = Q / [n * (k - 1)]$ 
.'.

```

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

```

Formula: Q=[12/(n*k*(k+1))]*sum(R_j^2)-3*n*(k+1); W=Q/[n*(k-1)].
  465  0  ECHO 'Variables: famrel, freetime, goout'.
  465  0 M> ECHO 'Variables: famrel, freetime, goout'.
Variables: famrel, freetime, goout
  466  0  ECHO 'Rows analyzed: 649'.
  466  0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
  467  0  ECHO 'df = 2'.
  467  0 M> ECHO 'df = 2'.
df = 2
  468  0  ECHO 'friedman_chi_square = 224.05244578920835'.
  468  0 M> ECHO 'friedman_chi_square = 224.05244578920835'.
friedman_chi_square = 224.05244578920835
  469  0  ECHO 'items = 3'.
  469  0 M> ECHO 'items = 3'.
items = 3
  470  0  ECHO 'kendalls_w = 0.17261359459877376'.
  470  0 M> ECHO 'kendalls_w = 0.17261359459877376'.
kendalls_w = 0.17261359459877376
  471  0  ECHO 'n_complete = 649'.
  471  0 M> ECHO 'n_complete = 649'.
n_complete = 649
  472  0  ECHO 'p_value = 2.226535215324847e-49'.
  472  0 M> ECHO 'p_value = 2.226535215324847e-49'.
p_value = 2.226535215324847e-49
  473  0  ECHO 'Cross-check status: pass'.
  473  0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
  474  0  ECHO '=====
====='.
  474  0 M> ECHO '=====
====='.
=====
  475  0
  475  0 M>
  476  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Friedman Test for Likert Data\SPSS_Output\spv\frie
dman-test-for-likert-data_spss_output.spv'.

```

Friedman Test for Likert Data
Within-respondent comparison of famrel freetime and goout

```
476  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale An
alysis\Friedman Test for Likert Data\SPSS_Output\spv\fr
        iedman-test-for-likert-data_spss_output.spv'.
477  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
477  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```