```
683  0  OUTPUT ACTIVATE MannWhitneyUTestforLikertDataOutput.
683  0 M>  OUTPUT ACTIVATE MannWhitneyUTestforLikertDataOutput.
684  0  TITLE 'Mann Whitney U Test for Likert Data'.
684  0 M>  TITLE 'Mann Whitney U Test for Likert Data'.
```

```
 685  0
 685  0 M>
 686  0  GET DATA
 686  0 M>  GET DATA
 687  0   /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis
\Mann Whitney U Test for Likert Data\dataset.csv' /ENC
            ODING='UTF8' /DELCASE=LINE /DELIMITERS=',' /QUALIFIER='"'
 687  0 M>   /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Mann Whitney U Test for Likert Data\dataset.csv' /
              ENCODING='UTF8' /DELCASE=LINE /DELIMITERS=',' /QUALIFIER='"'
 688  0   /ARRANGEMENT=DELIMITED /FIRSTCASE=2
 688  0 M>   /ARRANGEMENT=DELIMITED /FIRSTCASE=2
 689  0   /VARIABLES=
 689  0 M>   /VARIABLES=
 690  0   school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0
 Fedu F8.0
 690  0 M>   school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F
8.0 Fedu F8.0
 691  0   Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime
F8.0 failures F8.0
 691  0 M>   Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studyti
me F8.0 failures F8.0
 692  0   schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 in
ternet A8 romantic A8
 692  0 M>   schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8
 internet A8 romantic A8
 693  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.
 693  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.
 694  0  DATASET NAME MannWhitneyUTestforLikertDataData.
 694  0 M>  DATASET NAME MannWhitneyUTestforLikertDataData.
 695  0  COMPUTE subject_id=$CASENUM.
 695  0 M>  COMPUTE subject_id=$CASENUM.
 696  0  COMPUTE Dalc_R=6-Dalc.
 696  0 M>  COMPUTE Dalc_R=6-Dalc.
 697  0  COMPUTE Walc_R=6-Walc.
 697  0 M>  COMPUTE Walc_R=6-Walc.
```

```
 698  0  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,health
).
 698  0 M>  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,hea
lth).
 699  0  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
 699  0 M>  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
 700  0  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
 700  0 M>  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
 701  0  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code internet_c
ode.
 701  0 M>  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code interne
t_code.
 702  0  EXECUTE.
 702  0 M>  EXECUTE.
 703  0
 703  0 M>
 704  0  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
 704  0 M>  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
 705  0  TITLE 'Mann Whitney U Test for Likert Data'.
 705  0 M>  TITLE 'Mann Whitney U Test for Likert Data'.
```

```
706  0  SUBTITLE 'Family-relationship response by respondent sex'.
706  0 M>  SUBTITLE 'Family-relationship response by respondent sex'.
```

```
707  0  NPAR TESTS /M-W=famrel BY sex_code(1 2) /MISSING ANALYSIS.
707  0 M>  NPAR TESTS /M-W=famrel BY sex_code(1 2) /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		18-JUL-2026 13:21:37
Comments		
Input	Data	D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Mann Whitney U Test for Likert Data\dataset.csv
	Active Dataset	MannWhitneyUTestforLikertDataData
	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 /M-W=famrel BY sex_code(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.04
	Number of Cases Allowed[a]	449389

a. Based on availability of workspace memory.

```
[MannWhitneyUTestforLikertDataData]
```

Mann-Whitney Test

Mann Whitney U Test for Likert Data
Family-relationship response by respondent sex

Ranks

	sex_code	N	Mean Rank	Sum of Ranks
famrel	1.00	383	313.45	120052.50
	2.00	266	341.63	90872.50
	Total	649		

Test Statistics[a]

	famrel
Mann-Whitney U	46516.500
Wilcoxon W	120052.500
Z	-2.032
Asymp. Sig. (2-tailed)	.042

a. Grouping Variable: sex_code

```
708  0  MEANS TABLES=famrel BY sex /CELLS=COUNT MEAN MEDIAN STDDEV MIN MAX.
708  0 M>  MEANS TABLES=famrel BY sex /CELLS=COUNT MEAN MEDIAN STDDEV MIN MAX
.
```

Means

Mann Whitney U Test for Likert Data
Family-relationship response by respondent sex

Notes

Output Created		18-JUL-2026 13:21:37
Comments		
Input	Data	D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Mann Whitney U Test for Likert Data\dataset.csv
	Active Dataset	MannWhitneyUTestforLikertDataData
	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=famrel BY sex /CELLS=COUNT MEAN MEDIAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.05

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
famrel * sex	649	100.0%	0	0.0%	649	100.0%

Mann Whitney U Test for Likert Data
Family-relationship response by respondent sex

Report

famrel

sex	N	Mean	Median	Std. Deviation	Minimum	Maximum
F	383	3.86	4.00	.988	1	5
M	266	4.03	4.00	.900	1	5
Total	649	3.93	4.00	.956	1	5

```
709  0  CROSSTABS /TABLES=sex BY famrel /CELLS=COUNT ROW.
709  0 M>  CROSSTABS /TABLES=sex BY famrel /CELLS=COUNT ROW.
```

Crosstabs

Notes

Output Created		18-JUL-2026 13:21:37
Comments		
Input	Data	D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Mann Whitney U Test for Likert Data\dataset.csv
	Active Dataset	MannWhitneyUTestforLikertDataData
	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 table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=sex BY famrel /CELLS=COUNT ROW.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.06

Mann Whitney U Test for Likert Data
Family-relationship response by respondent sex

Notes

Dimensions Requested	2
Cells Available	524245

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
sex * famrel	649	100.0%	0	0.0%	649	100.0%

sex * famrel Crosstabulation

			famrel					
			1	2	3	4	5	Total
sex	F	Count	17	17	63	190	96	383
		% within sex	4.4%	4.4%	16.4%	49.6%	25.1%	100.0%
	M	Count	5	12	38	127	84	266
		% within sex	1.9%	4.5%	14.3%	47.7%	31.6%	100.0%
Total		Count	22	29	101	317	180	649
		% within sex	3.4%	4.5%	15.6%	48.8%	27.7%	100.0%

```
 710  0  ECHO 'The U statistic is oriented to the female group in the verified
 reference'.
 710  0 M>  ECHO 'The U statistic is oriented to the female group in the verif
ied reference'.
The U statistic is oriented to the female group in the verified reference
 711  0  * END METHOD-SPECIFIC SPSS WORKFLOW.
 711  0 M>  * END METHOD-SPECIFIC SPSS WORKFLOW.
 712  0
 712  0 M>
 713  0  SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Man
n Whitney U Test for Likert Data\SPSS_Output\sav\mann-
           whitney-u-test-for-likert-data_spss_ready_data.sav' /COMPRESSED.
 713  0 M>  SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\
Mann Whitney U Test for Likert Data\SPSS_Output\sav\ma
             nn-whitney-u-test-for-likert-data_spss_ready_data.sav' /COMPRES
SED.
```

```
 714  0
 714  0 M>
 715  0  ECHO '============================================================
=========='.
 715  0 M>  ECHO '============================================================
============'.
==============================================================================
 716  0  ECHO 'MANN WHITNEY U TEST FOR LIKERT DATA'.
 716  0 M>  ECHO 'MANN WHITNEY U TEST FOR LIKERT DATA'.
MANN WHITNEY U TEST FOR LIKERT DATA
 717  0  ECHO 'Method type: hypothesis_test'.
 717  0 M>  ECHO 'Method type: hypothesis_test'.
Method type: hypothesis_test
 718  0  ECHO 'Design: Two-sided rank comparison of family-relationship respon
ses between female and male respondents.'.
 718  0 M>  ECHO 'Design: Two-sided rank comparison of family-relationship res
ponses between female and male respondents.'.
Design: Two-sided rank comparison of family-relationship responses between fem
ale and male respondents.
 719  0  ECHO 'Inference scope: H0: the two independent response distributions
 are equal; P(F response > M response)+0.5P(tie)=0.5.'
           .
 719  0 M>  ECHO 'Inference scope: H0: the two independent response distributi
ons are equal; P(F response > M response)+0.5P(tie)=0.
              5.'.
Inference scope: H0: the two independent response distributions are equal; P(F
 response > M response)+0.5P(tie)=0.5.
 720  0  ECHO 'Formula: U_F=R_F-n_F(n_F+1)/2; rank-biserial=2U_F/(n_F*n_M)-1.'
.
 720  0 M>  ECHO 'Formula: U_F=R_F-n_F(n_F+1)/2; rank-biserial=2U_F/(n_F*n_M)-
1.'.
Formula: U_F=R_F-n_F(n_F+1)/2; rank-biserial=2U_F/(n_F*n_M)-1.
 721  0  ECHO 'Variables: sex, famrel'.
 721  0 M>  ECHO 'Variables: sex, famrel'.
Variables: sex, famrel
 722  0  ECHO 'Rows analyzed: 649'.
 722  0 M>  ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
 723  0  ECHO 'female_median = 4.0'.
```

```
 723  0 M>  ECHO 'female_median = 4.0'.
female_median = 4.0
 724  0  ECHO 'male_median = 4.0'.
 724  0 M>  ECHO 'male_median = 4.0'.
male_median = 4.0
 725  0  ECHO 'n_female = 383'.
 725  0 M>  ECHO 'n_female = 383'.
n_female = 383
 726  0  ECHO 'n_male = 266'.
 726  0 M>  ECHO 'n_male = 266'.
n_male = 266
 727  0  ECHO 'p_value = 0.04216088926762922'.
 727  0 M>  ECHO 'p_value = 0.04216088926762922'.
p_value = 0.04216088926762922
 728  0  ECHO 'rank_biserial = -0.08681952924085667'.
 728  0 M>  ECHO 'rank_biserial = -0.08681952924085667'.
rank_biserial = -0.08681952924085667
 729  0  ECHO 'u_statistic_female = 46516.5'.
 729  0 M>  ECHO 'u_statistic_female = 46516.5'.
u_statistic_female = 46516.5
 730  0  ECHO 'Cross-check status: pass'.
 730  0 M>  ECHO 'Cross-check status: pass'.
Cross-check status: pass
 731  0  ECHO '================================================================
=========='.
 731  0 M>  ECHO '================================================================
============'.
================================================================================
 732  0
 732  0 M>
 733  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Mann Whitney U Test for Likert Data\SPSS_Output\sp
            v\mann-whitney-u-test-for-likert-data_spss_output.spv'.
 733  0 M>  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale An
alysis\Mann Whitney U Test for Likert Data\SPSS_Output
               \spv\mann-whitney-u-test-for-likert-data_spss_output.spv'.
 734  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
```

```
 734  0 M>  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```