

```
1206 0 OUTPUT ACTIVATE SurveyAnalysisinPythonOutput.  
1206 0 M> OUTPUT ACTIVATE SurveyAnalysisinPythonOutput.  
1207 0 TITLE 'Survey Analysis in Python'.  
1207 0 M> TITLE 'Survey Analysis in Python'.
```

Survey Analysis in Python

```
1208 0
1208 0 M>
1209 0 GET DATA
1209 0 M> GET DATA
1210 0 /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis
\Survey Analysis in Python\dataset.csv' /ENCODING='UTF
8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1210 0 M> /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Survey Analysis in Python\dataset.csv' /ENCODING='
UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1211 0 /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1211 0 M> /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1212 0 /VARIABLES=
1212 0 M> /VARIABLES=
1213 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0
Fedu F8.0
1213 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F
8.0 Fedu F8.0
1214 0 Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime
F8.0 failures F8.0
1214 0 M> Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studyti
me F8.0 failures F8.0
1215 0 schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 in
ternet A8 romantic A8
1215 0 M> schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8
internet A8 romantic A8
1216 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.
1216 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.
1217 0 DATASET NAME SurveyAnalysisinPythonData.
1217 0 M> DATASET NAME SurveyAnalysisinPythonData.
1218 0 COMPUTE subject_id=$CASENUM.
1218 0 M> COMPUTE subject_id=$CASENUM.
1219 0 COMPUTE Dalc_R=6-Dalc.
1219 0 M> COMPUTE Dalc_R=6-Dalc.
1220 0 COMPUTE Walc_R=6-Walc.
1220 0 M> COMPUTE Walc_R=6-Walc.
```

Survey Analysis in Python

```
1221 0  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,health
).
1221 0 M>  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,hea
lth).
1222 0  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
1222 0 M>  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
1223 0  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
1223 0 M>  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
1224 0  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code internet_c
ode.
1224 0 M>  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code interne
t_code.
1225 0  EXECUTE.
1225 0 M>  EXECUTE.
1226 0
1226 0 M>
1227 0  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1227 0 M>  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1228 0  TITLE 'Survey Analysis in Python'.
1228 0 M>  TITLE 'Survey Analysis in Python'.
```

Survey Analysis in Python

```
1229 0 SUBTITLE 'Scale estimate with explicitly documented Park-Miller boots  
trap reference'.
```

```
1229 0 M> SUBTITLE 'Scale estimate with explicitly documented Park-Miller bo  
otstrap reference'.
```

```
>Warning # 2004 on line 1229. Command name: SUBTITLE
```

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

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

```
1230 0 SET SEED=20260718.
1230 0 M> SET SEED=20260718.
1231 0 DESCRIPTIVES VARIABLES=scale_score /STATISTICS=MEAN STDDEV MIN MAX.
1231 0 M> DESCRIPTIVES VARIABLES=scale_score /STATISTICS=MEAN STDDEV MIN MAX
.
```

Descriptives

Notes

Output Created		18-JUL-2026 13:22:20
Comments		
Input	Data	D:\DATA ANALYSIS\MSurvey and Likert Scale Analysis\Survey Analysis in Python\dataset.csv
	Active Dataset	SurveyAnalysisinPythonData
	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=scale_score /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.04

[SurveyAnalysisinPythonData]

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
scale_score	649	2.00	4.83	3.6749	.49493
Valid N (listwise)	649				

```
1232 0 FREQUENCIES VARIABLES=scale_score /STATISTICS=MEAN MEDIAN STDDEV /HIS
TOGRAM NORMAL.
1232 0 M> FREQUENCIES VARIABLES=scale_score /STATISTICS=MEAN MEDIAN STDDEV /
HISTOGRAM NORMAL.
```

Frequencies

Notes

Output Created		18-JUL-2026 13:22:20
Comments		
Input	Data	D:\DATA ANALYSIS\Survey and Likert Scale Analysis\Survey Analysis in Python\dataset.csv
	Active Dataset	SurveyAnalysisinPythonData
	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.
Syntax		FREQUENCIES VARIABLES=scale_score /STATISTICS=MEAN MEDIAN STDDEV /HISTOGRAM NORMAL.
Resources	Processor Time	00:00:00.41
	Elapsed Time	00:00:00.36

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

Statistics

scale_score

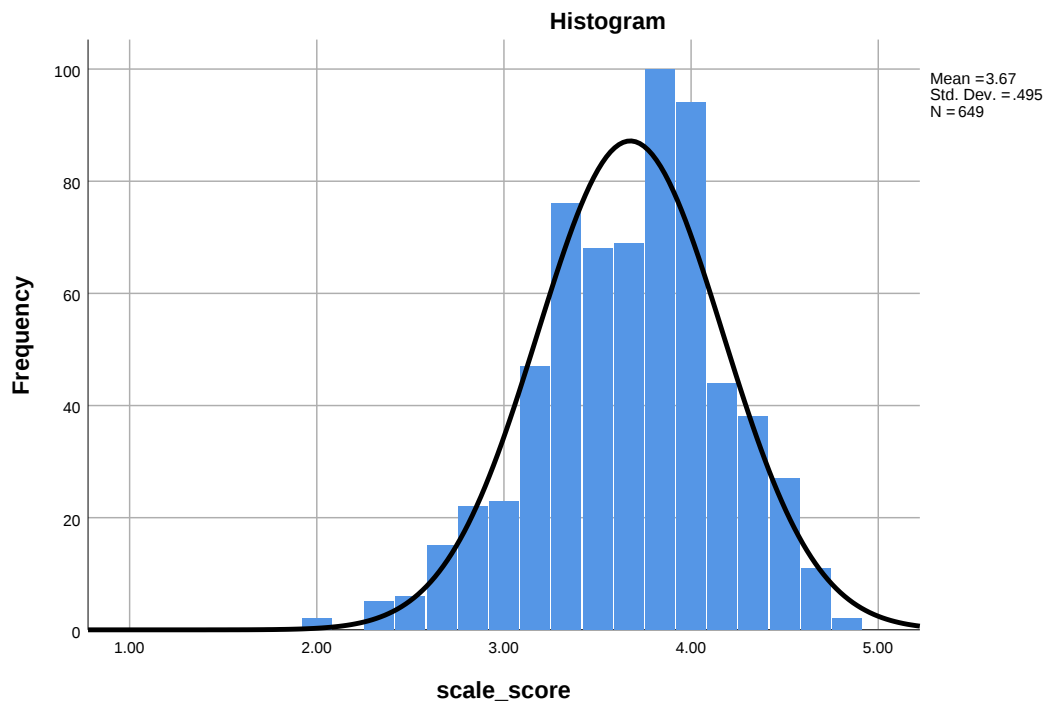
N	Valid	649
	Missing	0
Mean		3.6749
Median		3.6667
Std. Deviation		.49493

scale_score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	2	.3	.3	.3
	2.33	5	.8	.8	1.1
	2.50	6	.9	.9	2.0
	2.67	15	2.3	2.3	4.3
	2.83	22	3.4	3.4	7.7
	3.00	23	3.5	3.5	11.2
	3.17	47	7.2	7.2	18.5
	3.33	76	11.7	11.7	30.2
	3.50	68	10.5	10.5	40.7
	3.67	69	10.6	10.6	51.3
	3.83	100	15.4	15.4	66.7
	4.00	94	14.5	14.5	81.2
	4.17	44	6.8	6.8	88.0
	4.33	38	5.9	5.9	93.8
	4.50	27	4.2	4.2	98.0
	4.67	11	1.7	1.7	99.7
	4.83	2	.3	.3	100.0
	Total	649	100.0	100.0	

Survey Analysis in Python

Scale estimate with explicitly documented Park-Miller bootst



```

1233 0 ECHO 'The verified Python and R transcripts implement the published P
ark-Miller resampling loop for 2000 draws'.
1233 0 M> ECHO 'The verified Python and R transcripts implement the publishe
d Park-Miller resampling loop for 2000 draws'.
The verified Python and R transcripts implement the published Park-Miller resa
mpling loop for 2000 draws
1234 0 ECHO 'Base SPSS output reports the source estimate and the separately
audited deterministic bootstrap reference'.
1234 0 M> ECHO 'Base SPSS output reports the source estimate and the separat
ely audited deterministic bootstrap reference'.
Base SPSS output reports the source estimate and the separately audited determ
inistic bootstrap reference
1235 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
1235 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
1236 0
1236 0 M>
1237 0 SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Sur
vey Analysis in Python\SPSS_Output\sav\survey-analysis
-in-python_spss_ready_data.sav' /COMPRESSED.

```

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

```
1237 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\
Survey Analysis in Python\SPSS_Output\sav\survey-analy
sis-in-python_spss_ready_data.sav' /COMPRESSED.

1238 0
1238 0 M>
1239 0 ECHO '=====
====='.
1239 0 M> ECHO '=====
====='.
=====
1240 0 ECHO 'SURVEY ANALYSIS IN PYTHON'.
1240 0 M> ECHO 'SURVEY ANALYSIS IN PYTHON'.
SURVEY ANALYSIS IN PYTHON
1241 0 ECHO 'Method type: software_workflow'.
1241 0 M> ECHO 'Method type: software_workflow'.
Method type: software_workflow
1242 0 ECHO 'Design: Reproducible pandas/SciPy survey workflow with aligned
scale scoring and a fixed-seed nonparametric bootstrap
confidence interval.'.
1242 0 M> ECHO 'Design: Reproducible pandas/SciPy survey workflow with align
ed scale scoring and a fixed-seed nonparametric bootst
rap confidence interval.'.
Design: Reproducible pandas/SciPy survey workflow with aligned scale scoring a
nd a fixed-seed nonparametric bootstrap confidence int
1243 0 ECHO 'Inference scope: The bootstrap interval estimates uncertainty i
n the population mean scale score; no unrelated omnibu
s test is added.'.
1243 0 M> ECHO 'Inference scope: The bootstrap interval estimates uncertaint
y in the population mean scale score; no unrelated omn
ibus test is added.'.
Inference scope: The bootstrap interval estimates uncertainty in the populatio
n mean scale score; no unrelated omnibus test is added
1244 0 ECHO 'Formula: Park-Miller state=(48271*state) mod 2147483647; resamp
le rows with replacement; CI=[Q_.025(mean_b),Q_.975(me
an_b)].'.
1244 0 M> ECHO 'Formula: Park-Miller state=(48271*state) mod 2147483647; res
ample rows with replacement; CI=[Q_.025(mean_b),Q_.975
(mean_b)].'.
```

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

```
Formula: Park-Miller state=(48271*state) mod 2147483647; resample rows with re
placement; CI=[Q_.025(mean_b),Q_.975(mean_b)].
1245 0 ECHO 'Variables: famrel, freetime, goout, Dalc, Walc, health'.
1245 0 M> ECHO 'Variables: famrel, freetime, goout, Dalc, Walc, health'.
Variables: famrel, freetime, goout, Dalc, Walc, health
1246 0 ECHO 'Rows analyzed: 649'.
1246 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
1247 0 ECHO 'bootstrap_ci_high = 3.7126348228043144'.
1247 0 M> ECHO 'bootstrap_ci_high = 3.7126348228043144'.
bootstrap_ci_high = 3.7126348228043144
1248 0 ECHO 'bootstrap_ci_low = 3.6381612737544944'.
1248 0 M> ECHO 'bootstrap_ci_low = 3.6381612737544944'.
bootstrap_ci_low = 3.6381612737544944
1249 0 ECHO 'bootstrap_replications = 2000'.
1249 0 M> ECHO 'bootstrap_replications = 2000'.
bootstrap_replications = 2000
1250 0 ECHO 'bootstrap_standard_error = 0.019269480602695815'.
1250 0 M> ECHO 'bootstrap_standard_error = 0.019269480602695815'.
bootstrap_standard_error = 0.019269480602695815
1251 0 ECHO 'complete_cases = 649'.
1251 0 M> ECHO 'complete_cases = 649'.
complete_cases = 649
1252 0 ECHO 'scale_mean = 3.674884437596302'.
1252 0 M> ECHO 'scale_mean = 3.674884437596302'.
scale_mean = 3.674884437596302
1253 0 ECHO 'Cross-check status: pass'.
1253 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
1254 0 ECHO '=====
====='.
1254 0 M> ECHO '=====
====='.
=====
1255 0
1255 0 M>
1256 0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Survey Analysis in Python\SPSS_Output\spv\survey-a
nalysis-in-python_spss_output.spv'.
```

Survey Analysis in Python
Scale estimate with explicitly documented Park-Miller bootst

```
1256  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale An
analysis\Survey Analysis in Python\SPSS_Output\spv\surve
          y-analysis-in-python_spss_output.spv'.
1257  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
1257  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```