```
46  0  OUTPUT ACTIVATE AGFIOutput.
46  0 M>  OUTPUT ACTIVATE AGFIOutput.
47  0  TITLE 'Adjusted Goodness-of-Fit Index'.
47  0 M>  TITLE 'Adjusted Goodness-of-Fit Index'.
```

```
  48  0
  48  0 M>
  49  0  GET DATA
  49  0 M>  GET DATA
  50  0   /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Sca
le Testing\AGFI\dataset.csv' /ENCODING='UTF8' /DELCASE
            =LINE /DELIMITERS=',' /QUALIFIER='"'
  50  0 M>   /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and
Scale Testing\AGFI\dataset.csv' /ENCODING='UTF8' /DELC
              ASE=LINE /DELIMITERS=',' /QUALIFIER='"'
  51  0   /ARRANGEMENT=DELIMITED /FIRSTCASE=2
  51  0 M>   /ARRANGEMENT=DELIMITED /FIRSTCASE=2
  52  0   /VARIABLES=
  52  0 M>   /VARIABLES=
  53  0   school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0
 Fedu F8.0
  53  0 M>   school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F
8.0 Fedu F8.0
  54  0   Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime
F8.0 failures F8.0
  54  0 M>   Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studyti
me F8.0 failures F8.0
  55  0   schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 in
ternet A8 romantic A8
  55  0 M>   schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8
 internet A8 romantic A8
  56  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.
  56  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.
  57  0  DATASET NAME AGFIData.
  57  0 M>  DATASET NAME AGFIData.
  58  0  COMPUTE subject_id=$CASENUM.
  58  0 M>  COMPUTE subject_id=$CASENUM.
  59  0  COMPUTE Dalc_R=6-Dalc.
  59  0 M>  COMPUTE Dalc_R=6-Dalc.
  60  0  COMPUTE Walc_R=6-Walc.
  60  0 M>  COMPUTE Walc_R=6-Walc.
```

```
  61  0  RECODE schoolsup famsup paid activities higher internet ('no'=0) ('ye
s'=1)
  61  0 M>  RECODE schoolsup famsup paid activities higher internet ('no'=0) (
'yes'=1)
  62  0   INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
  62  0 M>   INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b
.
  63  0  EXECUTE.
  63  0 M>  EXECUTE.
  64  0
  64  0 M>
  65  0  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
  65  0 M>  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
  66  0  TITLE 'Adjusted Goodness of Fit Index'.
  66  0 M>  TITLE 'Adjusted Goodness of Fit Index'.
```

```
67  0  SUBTITLE 'Degrees-of-freedom-adjusted absolute fit diagnostics'.
67  0 M>  SUBTITLE 'Degrees-of-freedom-adjusted absolute fit diagnostics'.
```

```
  68  0  FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE /A
NALYSIS=G1 G2 G3 famrel freetime goout
  68  0 M>  FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE
 /ANALYSIS=G1 G2 G3 famrel freetime goout
  69  0   /PRINT=INITIAL EXTRACTION KMO CORRELATION /PLOT=EIGEN
  69  0 M>   /PRINT=INITIAL EXTRACTION KMO CORRELATION /PLOT=EIGEN
  70  0   /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=NOROTATE
 /METHOD=CORRELATION.
  70  0 M>   /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=NOROT
ATE /METHOD=CORRELATION.
```

Factor Analysis

Notes

Output Created		18-JUL-2026 10:53:46
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\AGFI\dataset.csv
	Active Dataset	AGFIData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.
	Cases Used	LISTWISE: Statistics are based on cases with no missing values for any variable used.

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

Notes

Syntax		FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE /ANALYSIS=G1 G2 G3 famrel freetime goout /PRINT=INITIAL EXTRACTION KMO CORRELATION /PLOT=EIGEN /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=NOROTATE /METHOD=CORRELATION.
Resources	Processor Time	00:00:04.86
	Elapsed Time	00:00:02.20
	Maximum Memory Required	5704 (5.570K) bytes

[AGFIData]

Correlation Matrix

		G1	G2	G3	famrel	freetime	goout
Correlation	G1	1.000	.865	.826	.049	-.094	-.074
	G2	.865	1.000	.919	.090	-.107	-.079
	G3	.826	.919	1.000	.063	-.123	-.088
	famrel	.049	.090	.063	1.000	.129	.090
	freetime	-.094	-.107	-.123	.129	1.000	.346
	goout	-.074	-.079	-.088	.090	.346	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	2220.632
	df	15
	Sig.	.000

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

Communalities

	Initial	Extraction
G1	.755	.775
G2	.880	.966
G3	.849	.878
famrel	.034	.045
freetime	.140	.474
goout	.125	.252

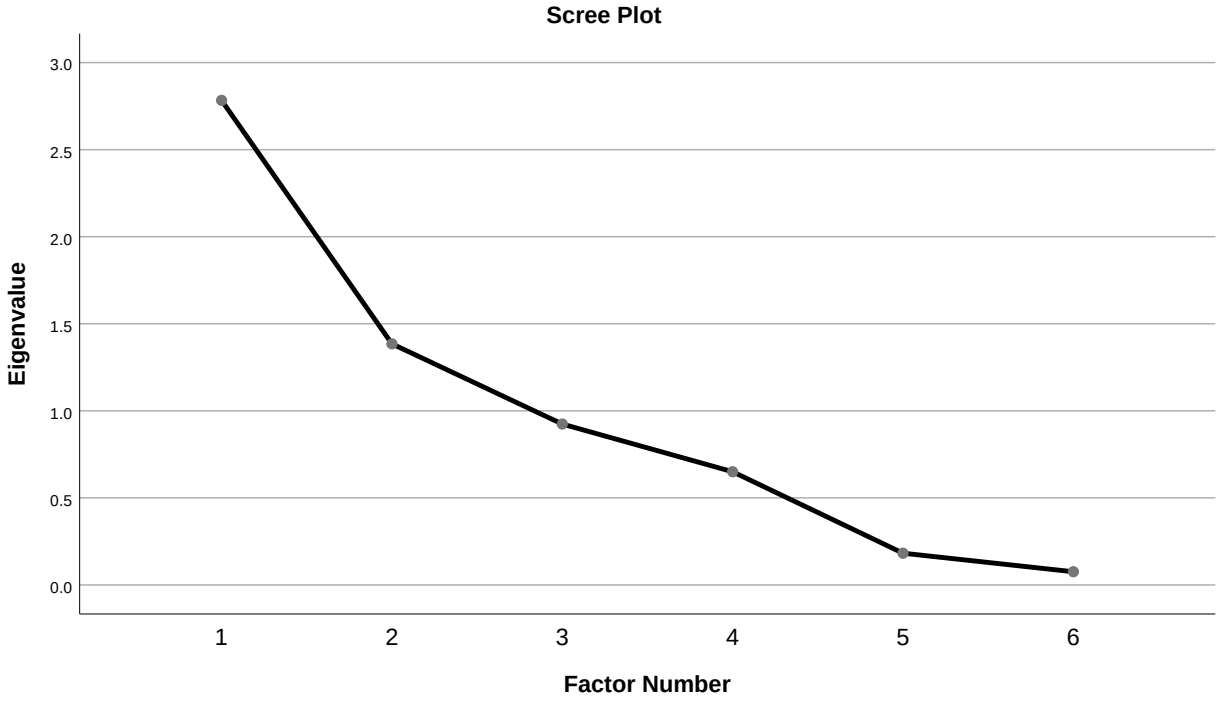
Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.783	46.381	46.381	2.650	44.166	44.166
2	1.385	23.080	69.461	.740	12.337	56.503
3	.924	15.402	84.863			
4	.650	10.835	95.698			
5	.182	3.038	98.736			
6	.076	1.264	100.000			

Extraction Method: Principal Axis Factoring.

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics



Factor Matrix[a]

	Factor	
	1	2
G1	.879	.053
G2	.980	.070
G3	.936	.033
famrel	.061	.204
freetime	-.153	.671
goout	-.114	.489

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 41 iterations required.

```
  71  0  RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Academic measurement block')
ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE CORR.
  71  0 M>  RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Academic measurement block
') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE CORR
```

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

.

Reliability

Notes

Output Created		18-JUL-2026 10:53:48
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\AGFI\dataset.csv
	Active Dataset	AGFIData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
	Matrix Input	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\AGFI\agfi_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.
Syntax		RELIABILITY /VARIABLES=G1 G2 G3 /SCALE('Academic measurement block') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE CORR.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

Scale: Academic measurement block

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

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
.951	.953	3

Item Statistics

	Mean	Std. Deviation	N
G1	11.40	2.745	649
G2	11.57	2.914	649
G3	11.91	3.231	649

Inter-Item Correlation Matrix

	G1	G2	G3
G1	1.000	.865	.826
G2	.865	1.000	.919
G3	.826	.919	1.000

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
34.88	72.251	8.500	3

```
  72  0  RELIABILITY /VARIABLES=famrel freetime goout /SCALE('Social measureme
nt block') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SC
           ALE CORR.
```

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

```
  72  0 M>  RELIABILITY /VARIABLES=famrel freetime goout /SCALE('Social measur
ement block') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE
                SCALE CORR.
```

Reliability

Notes

Output Created		18-JUL-2026 10:53:48
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\AGFI\dataset.csv
	Active Dataset	AGFIData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
	Matrix Input	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\AGFI\agfi_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.
Syntax		RELIABILITY /VARIABLES=famrel freetime goout /SCALE ('Social measurement block') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE CORR.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.04

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics

Scale: Social measurement block

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
.419	.411	3

Item Statistics

	Mean	Std. Deviation	N
famrel	3.93	.956	649
freetime	3.18	1.051	649
goout	3.18	1.176	649

Inter-Item Correlation Matrix

	famrel	freetime	goout
famrel	1.000	.129	.090
freetime	.129	1.000	.346
goout	.090	.346	1.000

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
10.30	4.718	2.172	3

```
  73  0  ECHO 'AGFI applies a complexity penalty to GFI using the declared CFA
 degrees of freedom'.
  73  0 M>  ECHO 'AGFI applies a complexity penalty to GFI using the declared
CFA degrees of freedom'.
AGFI applies a complexity penalty to GFI using the declared CFA degrees of fre
edom
  74  0  * END METHOD-SPECIFIC SPSS WORKFLOW.
  74  0 M>  * END METHOD-SPECIFIC SPSS WORKFLOW.
  75  0
  75  0 M>
  76  0  SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale T
esting\AGFI\SPSS_Output\sav\agfi_spss_ready_data.sav'
           /COMPRESSED.
  76  0 M>  SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scal
e Testing\AGFI\SPSS_Output\sav\agfi_spss_ready_data.sa
              v' /COMPRESSED.
  77  0
  77  0 M>
  78  0  ECHO '============================================================
=========='.
  78  0 M>  ECHO '============================================================
============'.
============================================================================
  79  0  ECHO 'ADJUSTED GOODNESS-OF-FIT INDEX'.
  79  0 M>  ECHO 'ADJUSTED GOODNESS-OF-FIT INDEX'.
ADJUSTED GOODNESS-OF-FIT INDEX
  80  0  ECHO 'Design: Degrees-of-freedom-adjusted absolute fit for the two-fa
ctor CFA.'.
  80  0 M>  ECHO 'Design: Degrees-of-freedom-adjusted absolute fit for the two
-factor CFA.'.
Design: Degrees-of-freedom-adjusted absolute fit for the two-factor CFA.
  81  0  ECHO 'Null hypothesis: The adjusted goodness-of-fit does not exceed t
he conventional adequate-fit region.'.
  81  0 M>  ECHO 'Null hypothesis: The adjusted goodness-of-fit does not excee
d the conventional adequate-fit region.'.
Null hypothesis: The adjusted goodness-of-fit does not exceed the conventional
 adequate-fit region.
  82  0  ECHO 'Formula: AGFI=1-[p(p+1)/(2df)](1-GFI).'.
  82  0 M>  ECHO 'Formula: AGFI=1-[p(p+1)/(2df)](1-GFI).'.
```

```
Formula: AGFI=1-[p(p+1)/(2df)](1-GFI).
  83  0  ECHO 'Variables: G1, G2, G3, famrel, freetime, goout'.
  83  0 M>  ECHO 'Variables: G1, G2, G3, famrel, freetime, goout'.
Variables: G1, G2, G3, famrel, freetime, goout
  84  0  ECHO 'Rows analyzed: 649'.
  84  0 M>  ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
  85  0  ECHO 'agfi = 0.980666923747394'.
  85  0 M>  ECHO 'agfi = 0.980666923747394'.
agfi = 0.980666923747394
  86  0  ECHO 'df = 8'.
  86  0 M>  ECHO 'df = 8'.
df = 8
  87  0  ECHO 'gfi = 0.9926350185704358'.
  87  0 M>  ECHO 'gfi = 0.9926350185704358'.
gfi = 0.9926350185704358
  88  0  ECHO 'observed_moments = 21'.
  88  0 M>  ECHO 'observed_moments = 21'.
observed_moments = 21
  89  0  ECHO 'Cross-check status: pass'.
  89  0 M>  ECHO 'Cross-check status: pass'.
Cross-check status: pass
  90  0  ECHO '================================================================
=========='.
  90  0 M>  ECHO '================================================================
============'.
================================================================================
  91  0
  91  0 M>
  92  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and
Scale Testing\AGFI\SPSS_Output\spv\agfi_spss_output.sp
           v'.
  92  0 M>  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis a
nd Scale Testing\AGFI\SPSS_Output\spv\agfi_spss_output
              .spv'.
  93  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
  93  0 M>  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```

Adjusted Goodness of Fit Index
Degrees-of-freedom-adjusted absolute fit diagnostics