

```
1718 0 OUTPUT ACTIVATE ObliminRotationOutput.  
1718 0 M> OUTPUT ACTIVATE ObliminRotationOutput.  
1719 0 TITLE 'Direct Oblimin Rotation'.  
1719 0 M> TITLE 'Direct Oblimin Rotation'.
```

Direct Oblimin Rotation

```
1720 0
1720 0 M>
1721 0 GET DATA
1721 0 M> GET DATA
1722 0 /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Oblimin Rotation\dataset.csv' /ENCODING='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1722 0 M> /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Oblimin Rotation\dataset.csv' /ENCODING='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1723 0 /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1723 0 M> /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1724 0 /VARIABLES=
1724 0 M> /VARIABLES=
1725 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0 Fedu F8.0
1725 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0 Fedu F8.0
1726 0 Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime F8.0 failures F8.0
1726 0 M> Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime F8.0 failures F8.0
1727 0 schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A8
1727 0 M> schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A8
1728 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.
1728 0 M> 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.
1729 0 DATASET NAME ObliminRotationData.
1729 0 M> DATASET NAME ObliminRotationData.
1730 0 COMPUTE subject_id=$CASENUM.
1730 0 M> COMPUTE subject_id=$CASENUM.
1731 0 COMPUTE Dalc_R=6-Dalc.
1731 0 M> COMPUTE Dalc_R=6-Dalc.
1732 0 COMPUTE Walc_R=6-Walc.
1732 0 M> COMPUTE Walc_R=6-Walc.
```

Direct Oblimin Rotation

```
1733 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
1733 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
1734 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
1734 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b
.
1735 0 EXECUTE.
1735 0 M> EXECUTE.
1736 0
1736 0 M>
1737 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1737 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1738 0 TITLE 'Direct Oblimin Rotation'.
1738 0 M> TITLE 'Direct Oblimin Rotation'.
```

Direct Oblimin Rotation

```
1739 0 SUBTITLE 'Correlated-factor quartimin pattern and Phi matrix'.  
1739 0 M> SUBTITLE 'Correlated-factor quartimin pattern and Phi matrix'.
```

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

```

1740  0  FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE /A
NALYSIS=G1 G2 G3 famrel freetime goout
1740  0 M>  FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE
 /ANALYSIS=G1 G2 G3 famrel freetime goout
1741  0  /PRINT=INITIAL EXTRACTION KMO CORRELATION ROTATION /PLOT=EIGEN ROTAT
ION
1741  0 M>  /PRINT=INITIAL EXTRACTION KMO CORRELATION ROTATION /PLOT=EIGEN RO
TATION
1742  0  /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=OBLIMIN
/METHOD=CORRELATION.
1742  0 M>  /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=OBLIM
IN /METHOD=CORRELATION.

```

Factor Analysis

Notes

Output Created		18-JUL-2026 10:57:03
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Oblimin Rotation\dataset.csv
	Active Dataset	ObliminRotationData
	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.

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

Notes

Syntax		FACTOR /VARIABLES=G1 G2 G3 famrel freetime goout /MISSING=LISTWISE /ANALYSIS=G1 G2 G3 famrel freetime goout /PRINT=INITIAL EXTRACTION KMO CORRELATION ROTATION /PLOT=EIGEN ROTATION /CRITERIA=FACTORS(2) ITERATE(500) /EXTRACTION=PAF /ROTATION=OBLIMIN /METHOD=CORRELATIO...
Resources	Processor Time	00:00:01.02
	Elapsed Time	00:00:01.38
	Maximum Memory Required	5704 (5.570K) bytes

[ObliminRotationData]

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

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

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

Factor	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% 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			

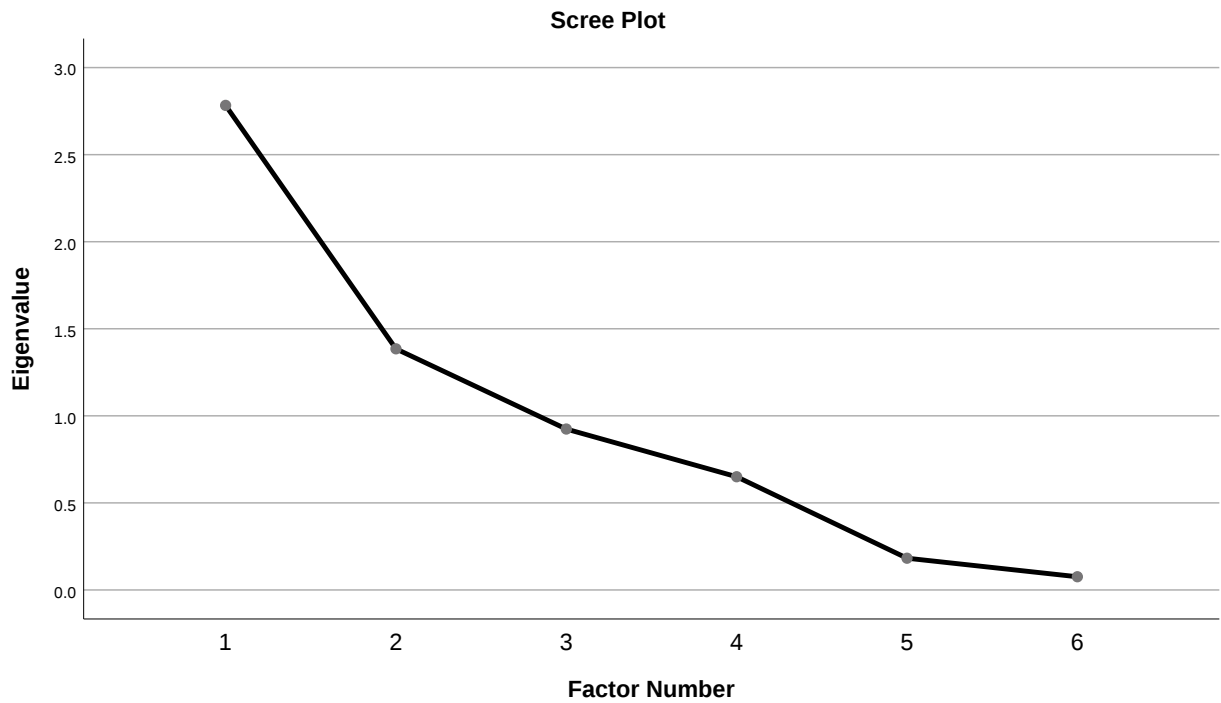
Total Variance Explained

Factor	Rotation Sums of Squared Loadings ^a
	Total
1	2.641
2	.750
3	
4	
5	
6	

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

Extraction Method: Principal Axis Factoring.

- a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.



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.

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

Pattern Matrix^a

	Factor	
	1	2
G1	.880	-.007
G2	.983	.003
G3	.936	-.030
famrel	.076	.199
freetime	-.104	.680
goout	-.078	.495

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Structure Matrix

	Factor	
	1	2
G1	.880	-.012
G2	.983	-.002
G3	.936	-.035
famrel	.075	.199
freetime	-.108	.681
goout	-.080	.496

Extraction Method: Principal Axis Factoring.

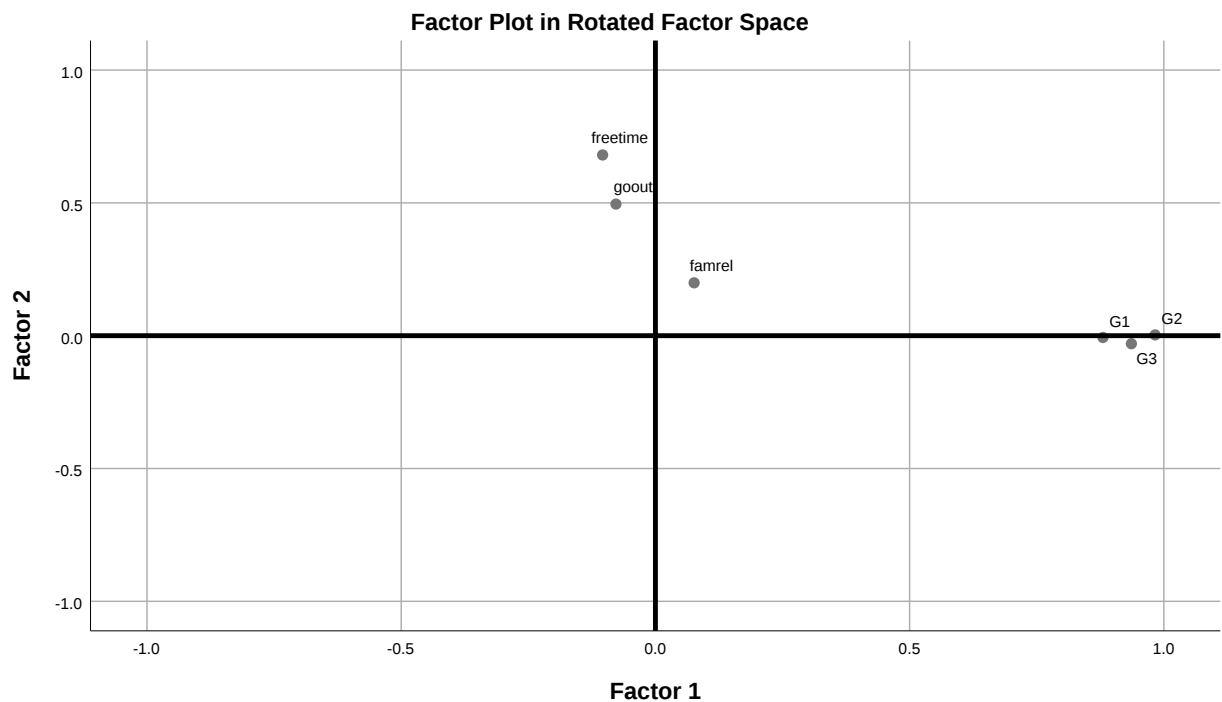
Rotation Method: Oblimin with Kaiser Normalization.

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

**Factor Correlation
Matrix**

Factor	1	2
1	1.000	-.005
2	-.005	1.000

Extraction Method: Principal
Axis Factoring.
Rotation Method: Oblimin with
Kaiser Normalization.



```

1743  0  ECHO 'Direct oblimin reports a pattern matrix and factor correlation'
.
1743  0 M>  ECHO 'Direct oblimin reports a pattern matrix and factor correlati
on'.
Direct oblimin reports a pattern matrix and factor correlation
1744  0  DESCRIPTIVES VARIABLES=G1 G2 G3 famrel freetime goout /STATISTICS=MEA
N STDDEV MIN MAX.
1744  0 M>  DESCRIPTIVES VARIABLES=G1 G2 G3 famrel freetime goout /STATISTICS=
MEAN STDDEV MIN MAX.

```

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

Descriptives

Notes

Output Created		18-JUL-2026 10:57:04
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Oblimin Rotation\dataset.csv
	Active Dataset	ObliminRotationData
	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=G1 G2 G3 famrel freetime goout /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.08

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
G1	649	0	19	11.40	2.745
G2	649	0	19	11.57	2.914
G3	649	0	19	11.91	3.231
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				

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

```

1745 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
1745 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
1746 0
1746 0 M>
1747 0 SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale T
esting\Oblimin Rotation\SPSS_Output\sav\oblimin-rotati
on_spss_ready_data.sav' /COMPRESSED.
1747 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scal
e Testing\Oblimin Rotation\SPSS_Output\sav\oblimin-rot
ation_spss_ready_data.sav' /COMPRESSED.
1748 0
1748 0 M>
1749 0 ECHO '=====
====='.
1749 0 M> ECHO '=====
====='.
=====
1750 0 ECHO 'DIRECT OBLIMIN ROTATION'.
1750 0 M> ECHO 'DIRECT OBLIMIN ROTATION'.
DIRECT OBLIMIN ROTATION
1751 0 ECHO 'Design: Oblique rotation of principal-axis loadings with gamma
zero and correlated factors.'.
1751 0 M> ECHO 'Design: Oblique rotation of principal-axis loadings with gam
ma zero and correlated factors.'.
Design: Oblique rotation of principal-axis loadings with gamma zero and correl
ated factors.
1752 0 ECHO 'Null hypothesis: Oblique rotation does not yield a simpler inte
rpretable factor pattern.'.
1752 0 M> ECHO 'Null hypothesis: Oblique rotation does not yield a simpler i
nterpretable factor pattern.'.
Null hypothesis: Oblique rotation does not yield a simpler interpretable facto
r pattern.
1753 0 ECHO 'Formula: Minimize oblimin criterion Phi(L) with gamma=0 and unr
estricted factor correlation.'.
1753 0 M> ECHO 'Formula: Minimize oblimin criterion Phi(L) with gamma=0 and
unrestricted factor correlation.'.
Formula: Minimize oblimin criterion Phi(L) with gamma=0 and unrestricted facto
r correlation.

```

Direct Oblimin Rotation
Correlated-factor quartimin pattern and Phi matrix

```
1754 0 ECHO 'Variables: G1, G2, G3, famrel, freetime, goout'.
1754 0 M> ECHO 'Variables: G1, G2, G3, famrel, freetime, goout'.
Variables: G1, G2, G3, famrel, freetime, goout
1755 0 ECHO 'Rows analyzed: 649'.
1755 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
1756 0 ECHO 'cross_loading_items = 0'.
1756 0 M> ECHO 'cross_loading_items = 0'.
cross_loading_items = 0
1757 0 ECHO 'factor_correlation = 0.16682706017507173'.
1757 0 M> ECHO 'factor_correlation = 0.16682706017507173'.
factor_correlation = 0.16682706017507173
1758 0 ECHO 'factors = 2'.
1758 0 M> ECHO 'factors = 2'.
factors = 2
1759 0 ECHO 'maximum_pattern_loading = 0.9849922123249903'.
1759 0 M> ECHO 'maximum_pattern_loading = 0.9849922123249903'.
maximum_pattern_loading = 0.9849922123249903
1760 0 ECHO 'Cross-check status: pass'.
1760 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
1761 0 ECHO '=====
====='.
1761 0 M> ECHO '=====
====='.
=====
1762 0
1762 0 M>
1763 0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and
Scale Testing\Oblimin Rotation\SPSS_Output\spv\oblimin
-rotation_spss_output.spv'.
1763 0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis a
nd Scale Testing\Oblimin Rotation\SPSS_Output\spv\obli
min-rotation_spss_output.spv'.
1764 0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
1764 0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```