Host

Notes

Output Created		11-JUL-2026 16:55:13
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output""].
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.08

Host

Notes

Output Created		11-JUL-2026 16:55:13
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav"'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.08

Host

Notes

Output Created		11-JUL-2026 16:55:13
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\spv" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\spv"'].
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.07

Host

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\pdf" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\pdf"'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.05

Host

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c del /q "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav*.sav" 2>nul'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.07

```
D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
```

Host

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c del /q "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\spv*.spv" 2>nul'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.06

Host

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-results-with-predictions.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		HOST COMMAND=['cmd /c del /q "D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\pdf*.pdf" 2>nul'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.07

Dataset Name

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\dataset.csv
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		DATASET NAME ModeratedRegressionData.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Warnings

The active dataset will replace the existing dataset named ModeratedRegressionData.

```
>Warning # 2004.  Command name: SUBTITLE
>The subtitle given exceeds 60 characters in length.  The first 60 characters
>will be used.
```

Moderated Regression Variable Preparation
Create dummies and standardized variables for interaction mo

Descriptives

Notes

Output Created		11-JUL-2026 16:55:14
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\dataset.csv
	Active Dataset	ModeratedRegressionDat a
	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 studytime G2 failures absences age Medu Fedu traveltime famrel freetime goout Dalc Walc health /SAVE /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:00.08
Variables Created or Modified	ZG1	Zscore(G1)
	Zstudytime	Zscore(studytime)
	ZG2	Zscore(G2)
	Zfailures	Zscore(failures)
	Zabsences	Zscore(absences)
	Zage	Zscore(age)
	ZMedu	Zscore(Medu)
	ZFedu	Zscore(Fedu)

Moderated Regression Variable Preparation
Create dummies and standardized variables for interaction mo

Notes

	Ztraveltime	Zscore(traveltime)
	Zfamrel	Zscore(famrel)
	Zfreetime	Zscore(freetime)
	Zgoout	Zscore(goout)
	ZDalc	Zscore(Dalc)
	ZWalc	Zscore(Walc)
	Zhealth	Zscore(health)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
G1	649	0	19	11.40	2.745
studytime	649	1	4	1.93	.830
G2	649	0	19	11.57	2.914
failures	649	0	3	.22	.593
absences	649	0	32	3.66	4.641
age	649	15	22	16.74	1.218
Medu	649	0	4	2.51	1.135
Fedu	649	0	4	2.31	1.100
traveltime	649	1	4	1.57	.749
famrel	649	1	5	3.93	.956
freetime	649	1	5	3.18	1.051
goout	649	1	5	3.18	1.176
Dalc	649	1	5	1.50	.925
Walc	649	1	5	2.28	1.284
health	649	1	5	3.54	1.446
Valid N (listwise)	649				

Moderated Regression Prepared Data Summary

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Frequencies

Notes

Output Created		11-JUL-2026 16:55:15
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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=school sex address higher internet schoolsup famsup activities school_MS sex_M address_U higher_yes internet_yes schoolsup_yes famsup_yes activities_yes /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[ModeratedRegressionData] D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Statistics

		school	sex	address	higher	internet	schoolsup	famsup
N	Valid	649	649	649	649	649	649	649
	Missing	0	0	0	0	0	0	0

Statistics

		activities	School dummy: 1 = MS, 0 = GP	Sex dummy: 1 = male, 0 = female	Address dummy: 1 = urban, 0 = rural	Higher education intention dummy: yes
N	Valid	649	649	649	649	649
	Missing	0	0	0	0	0

Statistics

		Internet access dummy: yes	School support dummy: yes	Family support dummy: yes	Activities dummy: yes
N	Valid	649	649	649	649
	Missing	0	0	0	0

Frequency Table

school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GP	423	65.2	65.2	65.2
	MS	226	34.8	34.8	100.0
	Total	649	100.0	100.0	

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	383	59.0	59.0	59.0
	M	266	41.0	41.0	100.0
	Total	649	100.0	100.0	

address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	R	197	30.4	30.4	30.4
	U	452	69.6	69.6	100.0
	Total	649	100.0	100.0	

higher

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	69	10.6	10.6	10.6
	yes	580	89.4	89.4	100.0
	Total	649	100.0	100.0	

internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	151	23.3	23.3	23.3
	yes	498	76.7	76.7	100.0
	Total	649	100.0	100.0	

schoolsup

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	581	89.5	89.5	89.5
	yes	68	10.5	10.5	100.0
	Total	649	100.0	100.0	

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

famsup

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	251	38.7	38.7	38.7
	yes	398	61.3	61.3	100.0
	Total	649	100.0	100.0	

activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	334	51.5	51.5	51.5
	yes	315	48.5	48.5	100.0
	Total	649	100.0	100.0	

School dummy: 1 = MS, 0 = GP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	423	65.2	65.2	65.2
	Yes / target	226	34.8	34.8	100.0
	Total	649	100.0	100.0	

Sex dummy: 1 = male, 0 = female

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	383	59.0	59.0	59.0
	Yes / target	266	41.0	41.0	100.0
	Total	649	100.0	100.0	

Address dummy: 1 = urban, 0 = rural

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	197	30.4	30.4	30.4
	Yes / target	452	69.6	69.6	100.0
	Total	649	100.0	100.0	

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Higher education intention dummy: yes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	69	10.6	10.6	10.6
	Yes / target	580	89.4	89.4	100.0
	Total	649	100.0	100.0	

Internet access dummy: yes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	151	23.3	23.3	23.3
	Yes / target	498	76.7	76.7	100.0
	Total	649	100.0	100.0	

School support dummy: yes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	581	89.5	89.5	89.5
	Yes / target	68	10.5	10.5	100.0
	Total	649	100.0	100.0	

Family support dummy: yes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	251	38.7	38.7	38.7
	Yes / target	398	61.3	61.3	100.0
	Total	649	100.0	100.0	

Activities dummy: yes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No / reference	334	51.5	51.5	51.5
	Yes / target	315	48.5	48.5	100.0
	Total	649	100.0	100.0	

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Descriptives

Notes

Output Created		11-JUL-2026 16:55:15
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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=G3 G1 studytime ZG1 Zstudytime G1_x_studytime G2 failures absences age Medu Fedu traveltime famrel freetime goout Dalc Walc health /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Outcome variable: final grade	649	0	19	11.91	3.231
Focal predictor: first period grade	649	0	19	11.40	2.745
Moderator: weekly study time group	649	1	4	1.93	.830
Standardized focal predictor: G1	649	-4.15227	2.76874	.0000000	1.00000000
Standardized moderator: studytime	649	-1.12194	2.49465	.0000000	1.00000000
Moderation interaction: standardized G1 by standardized studytime	649	-5.81	6.00	.2605	1.01378
Second period grade control	649	0	19	11.57	2.914
Past class failures control	649	0	3	.22	.593
School absences control	649	0	32	3.66	4.641
Student age control	649	15	22	16.74	1.218
Mother education control	649	0	4	2.51	1.135
Father education control	649	0	4	2.31	1.100
Travel time control	649	1	4	1.57	.749
Family relationship quality control	649	1	5	3.93	.956
Free time after school control	649	1	5	3.18	1.051
Going out with friends control	649	1	5	3.18	1.176
Workday alcohol consumption control	649	1	5	1.50	.925
Weekend alcohol consumption control	649	1	5	2.28	1.284
Current health status control	649	1	5	3.54	1.446
Valid N (listwise)	649				

Correlations

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Notes

Output Created		11-JUL-2026 16:55:15
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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 pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=G3 G1 studytime G1_x_studytime G2 failures absences age /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Correlations

		Outcome variable: final grade	Focal predictor: first period grade	Moderator: weekly study time group
Outcome variable: final grade	Pearson Correlation	1	.826**	.250**
	Sig. (2-tailed)		.000	.000
	N	649	649	649
Focal predictor: first period grade	Pearson Correlation	.826**	1	.261**
	Sig. (2-tailed)	.000		.000
	N	649	649	649
Moderator: weekly study time group	Pearson Correlation	.250**	.261**	1
	Sig. (2-tailed)	.000	.000	
	N	649	649	649
Moderation interaction: standardized G1 by standardized studytime	Pearson Correlation	.011	.044	.125**
	Sig. (2-tailed)	.786	.261	.001
	N	649	649	649
Second period grade control	Pearson Correlation	.919**	.865**	.240**
	Sig. (2-tailed)	.000	.000	.000
	N	649	649	649
Past class failures control	Pearson Correlation	-.393**	-.384**	-.147**
	Sig. (2-tailed)	.000	.000	.000
	N	649	649	649
School absences control	Pearson Correlation	-.091*	-.147**	-.118**
	Sig. (2-tailed)	.020	.000	.003
	N	649	649	649
Student age control	Pearson Correlation	-.107**	-.174**	-.008
	Sig. (2-tailed)	.007	.000	.831
	N	649	649	649

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Correlations

		Moderation interaction: standardized G1 by standardized studytime	Second period grade control	Past class failures control
Outcome variable: final grade	Pearson Correlation	.011	.919**	-.393**
	Sig. (2-tailed)	.786	.000	.000
	N	649	649	649
Focal predictor: first period grade	Pearson Correlation	.044	.865**	-.384**
	Sig. (2-tailed)	.261	.000	.000
	N	649	649	649
Moderator: weekly study time group	Pearson Correlation	.125**	.240**	-.147**
	Sig. (2-tailed)	.001	.000	.000
	N	649	649	649
Moderation interaction: standardized G1 by standardized studytime	Pearson Correlation	1	.049	.055
	Sig. (2-tailed)		.215	.158
	N	649	649	649
Second period grade control	Pearson Correlation	.049	1	-.386**
	Sig. (2-tailed)	.215		.000
	N	649	649	649
Past class failures control	Pearson Correlation	.055	-.386**	1
	Sig. (2-tailed)	.158	.000	
	N	649	649	649
School absences control	Pearson Correlation	-.052	-.125**	.123**
	Sig. (2-tailed)	.182	.001	.002
	N	649	649	649
Student age control	Pearson Correlation	.097*	-.107**	.320**
	Sig. (2-tailed)	.014	.006	.000
	N	649	649	649

Moderated Regression Prepared Data Summary
Outcome, predictor, moderator, interaction, and controls

Correlations

		School absences control	Student age control
Outcome variable: final grade	Pearson Correlation	-.091*	-.107**
	Sig. (2-tailed)	.020	.007
	N	649	649
Focal predictor: first period grade	Pearson Correlation	-.147**	-.174**
	Sig. (2-tailed)	.000	.000
	N	649	649
Moderator: weekly study time group	Pearson Correlation	-.118**	-.008
	Sig. (2-tailed)	.003	.831
	N	649	649
Moderation interaction: standardized G1 by standardized studytime	Pearson Correlation	-.052	.097*
	Sig. (2-tailed)	.182	.014
	N	649	649
Second period grade control	Pearson Correlation	-.125**	-.107**
	Sig. (2-tailed)	.001	.006
	N	649	649
Past class failures control	Pearson Correlation	.123**	.320**
	Sig. (2-tailed)	.002	.000
	N	649	649
School absences control	Pearson Correlation	1	.150**
	Sig. (2-tailed)		.000
	N	649	649
Student age control	Pearson Correlation	.150**	1
	Sig. (2-tailed)	.000	
	N	649	649

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Outcome and Moderator Distribution

Outcome and Moderator Distribution
Explore final grade and moderator before regression

Explore

Notes

Output Created		11-JUL-2026 16:55:15
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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 for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
Syntax		EXAMINE VARIABLES=G3 G1 studytime G1_x_studytime /PLOT BOXPLOT HISTOGRAM NPPLOT /STATISTICS DESCRIPTIVES /CINTERVAL 95 /MISSING LISTWISE /NOTOTAL.
Resources	Processor Time	00:00:04.30
	Elapsed Time	00:00:02.55

Outcome and Moderator Distribution
Explore final grade and moderator before regression

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Outcome variable: final grade	649	100.0%	0	0.0%	649	100.0%
Focal predictor: first period grade	649	100.0%	0	0.0%	649	100.0%
Moderator: weekly study time group	649	100.0%	0	0.0%	649	100.0%
Moderation interaction: standardized G1 by standardized studytime	649	100.0%	0	0.0%	649	100.0%

Descriptives

			Statistic	Std. Error
Outcome variable: final grade	Mean		11.91	.127
	95% Confidence Interval for Mean	Lower Bound	11.66	
		Upper Bound	12.16	
	5% Trimmed Mean		12.06	
	Median		12.00	
	Variance		10.437	
	Std. Deviation		3.231	
	Minimum		0	
	Maximum		19	
	Range		19	
	Interquartile Range		4	
	Skewness		-.913	.096
	Kurtosis		2.712	.192
Focal predictor: first period grade	Mean		11.40	.108
	95% Confidence Interval for Mean	Lower Bound	11.19	
		Upper Bound	11.61	
	5% Trimmed Mean		11.39	
	Median		11.00	
	Variance		7.536	
	Std. Deviation		2.745	

Outcome and Moderator Distribution
Explore final grade and moderator before regression

Descriptives

			Statistic	Std. Error
	Minimum		0	
	Maximum		19	
	Range		19	
	Interquartile Range		3	
	Skewness		-.003	.096
	Kurtosis		.037	.192
Moderator: weekly study time group	Mean		1.93	.033
	95% Confidence Interval for Mean	Lower Bound	1.87	
		Upper Bound	1.99	
	5% Trimmed Mean		1.87	
	Median		2.00	
	Variance		.688	
	Std. Deviation		.830	
	Minimum		1	
	Maximum		4	
	Range		3	
	Interquartile Range		1	
	Skewness		.700	.096
	Kurtosis		.038	.192
Moderation interaction: standardized G1 by standardized studytime	Mean		.2605	.03979
	95% Confidence Interval for Mean	Lower Bound	.1823	
		Upper Bound	.3386	
	5% Trimmed Mean		.2179	
	Median		.0487	
	Variance		1.028	
	Std. Deviation		1.01378	
	Minimum		-5.81	
	Maximum		6.00	
	Range		11.81	
	Interquartile Range		.68	
	Skewness		1.197	.096
	Kurtosis		8.348	.192

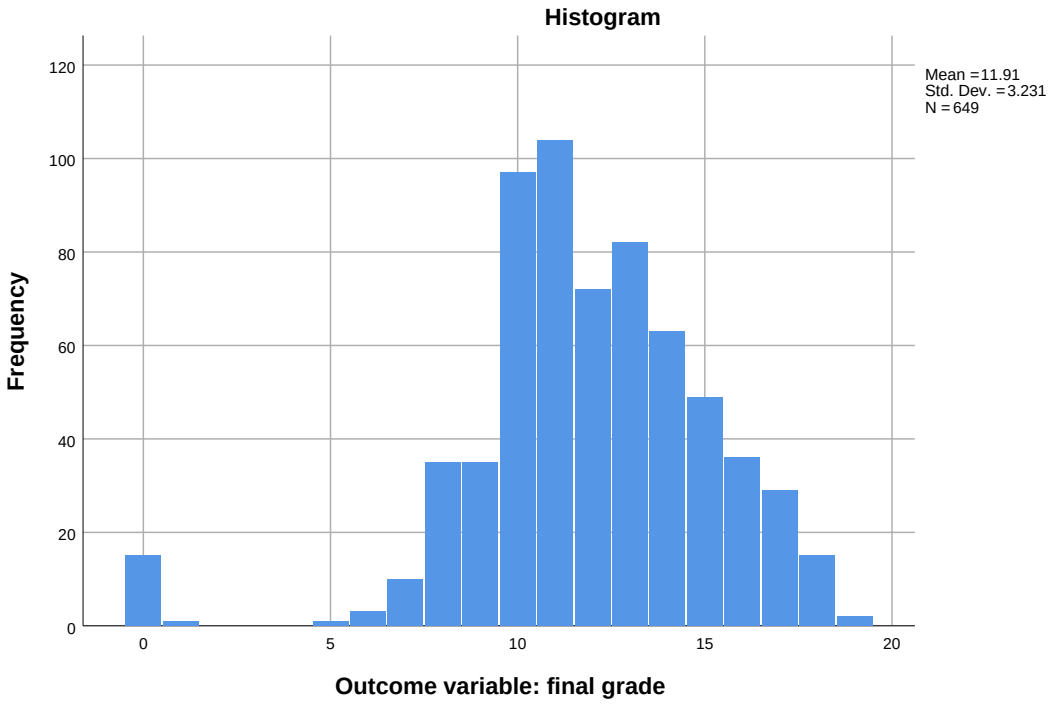
Outcome and Moderator Distribution
Explore final grade and moderator before regression

Tests of Normality

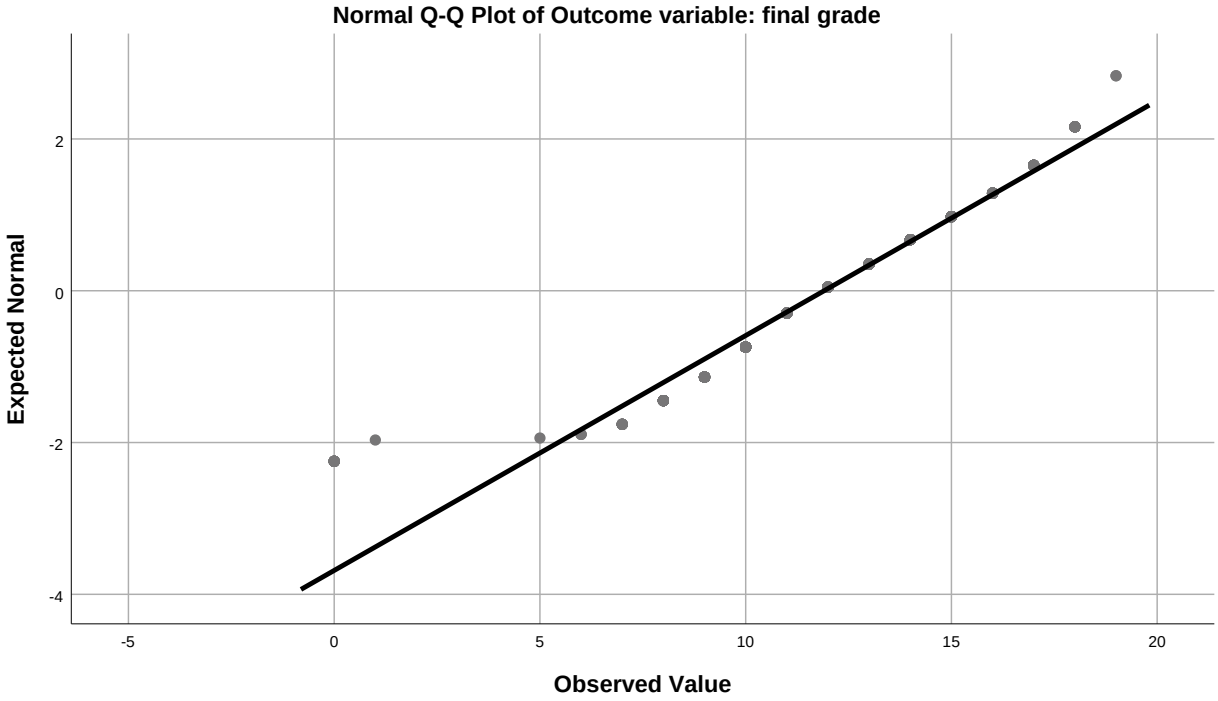
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Outcome variable: final grade	.124	649	.000	.926	649	.000
Focal predictor: first period grade	.086	649	.000	.986	649	.000
Moderator: weekly study time group	.263	649	.000	.825	649	.000
Moderation interaction: standardized G1 by standardized studytime	.236	649	.000	.832	649	.000

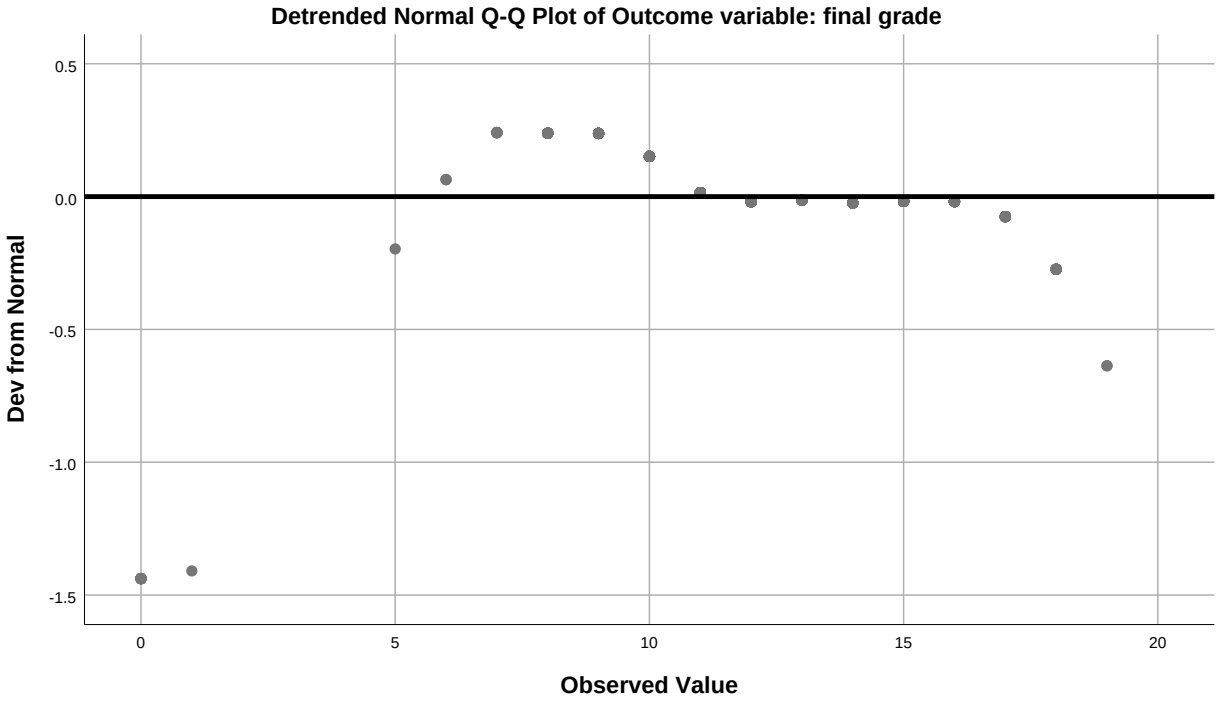
a. Lilliefors Significance Correction

Outcome variable: final grade

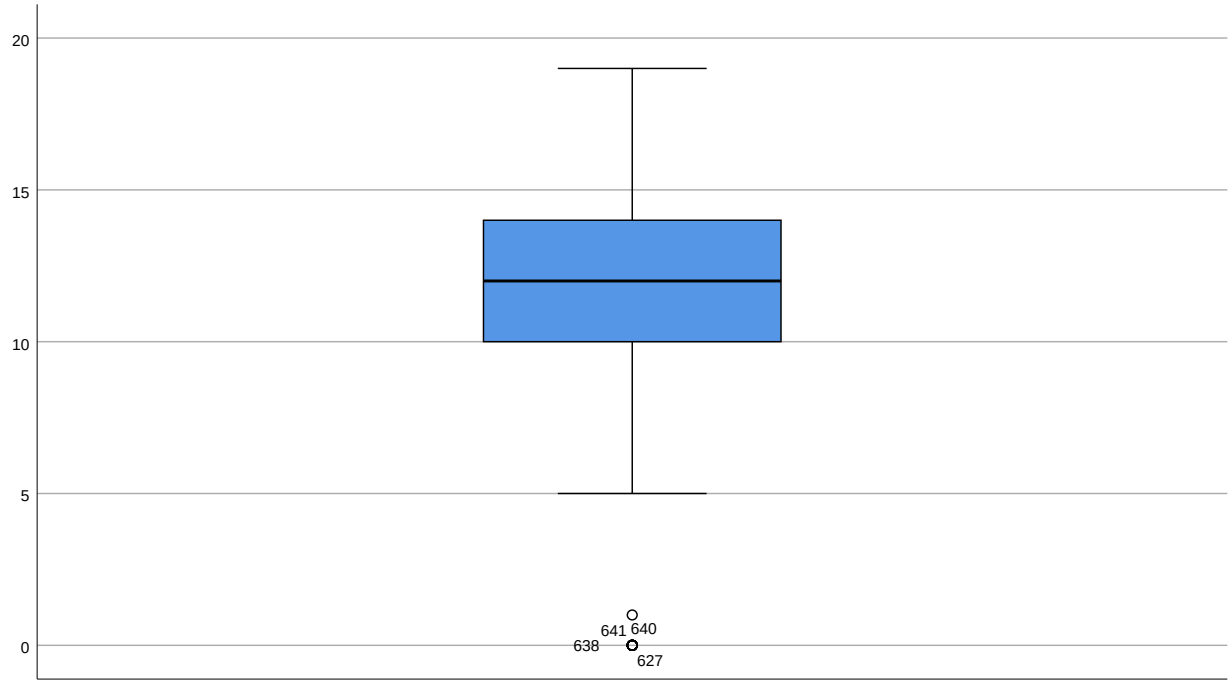


Outcome and Moderator Distribution
Explore final grade and moderator before regression





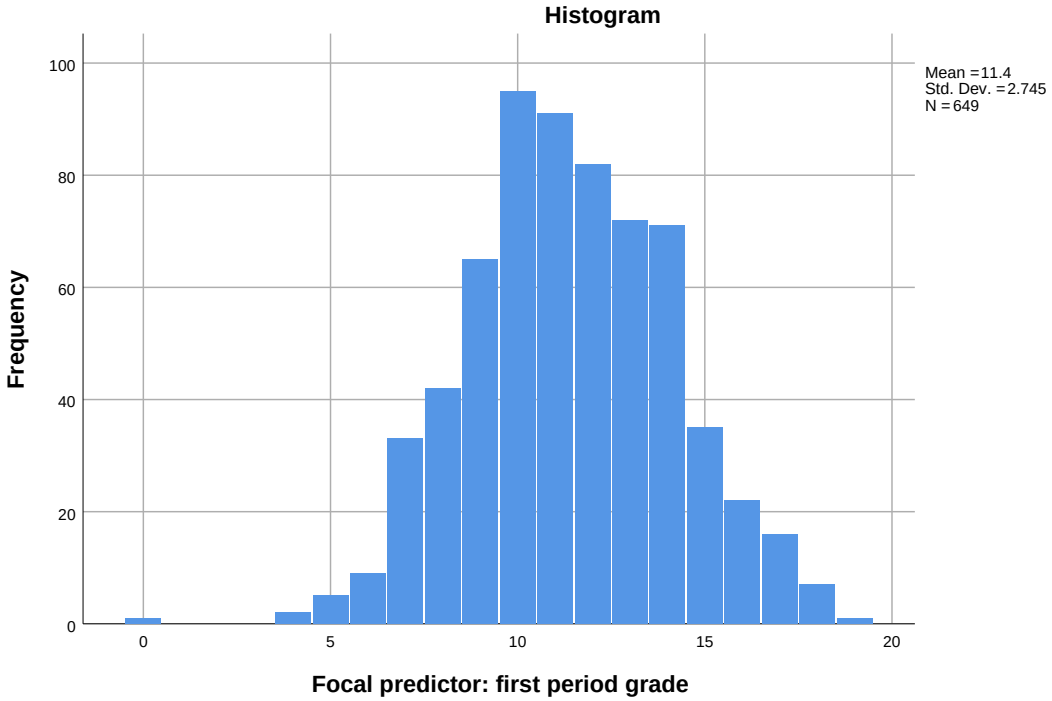
Outcome and Moderator Distribution
Explore final grade and moderator before regression

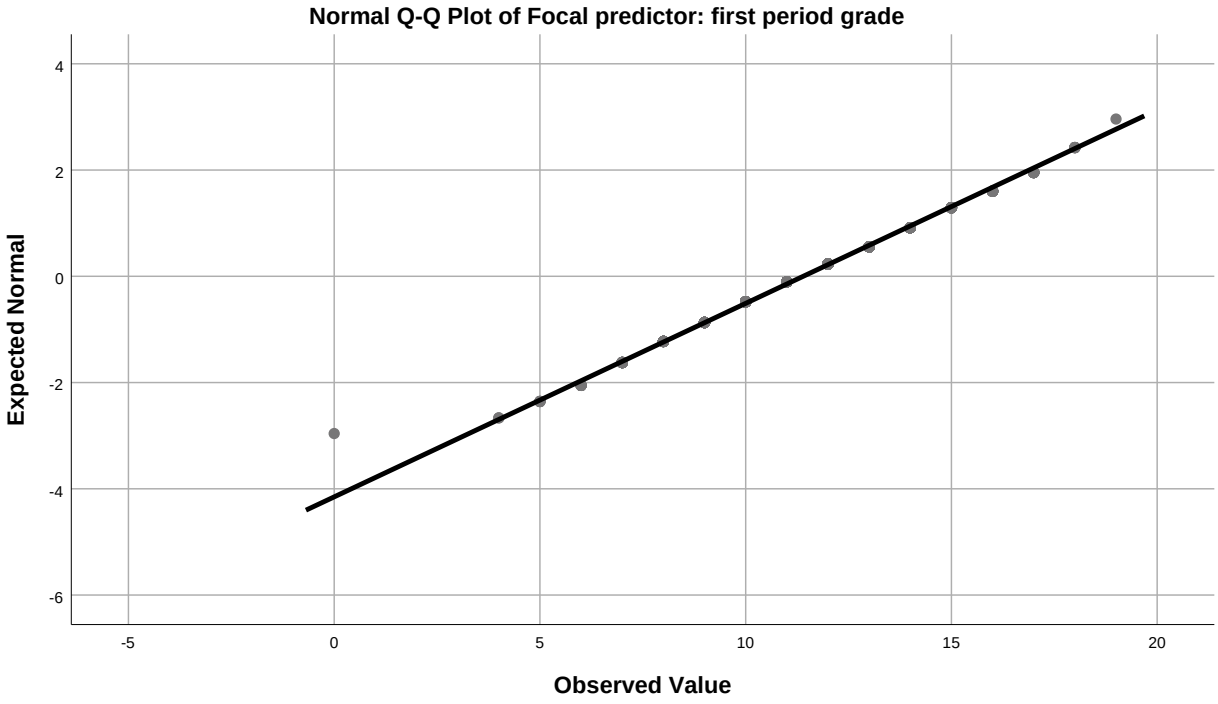


Outcome variable: final grade

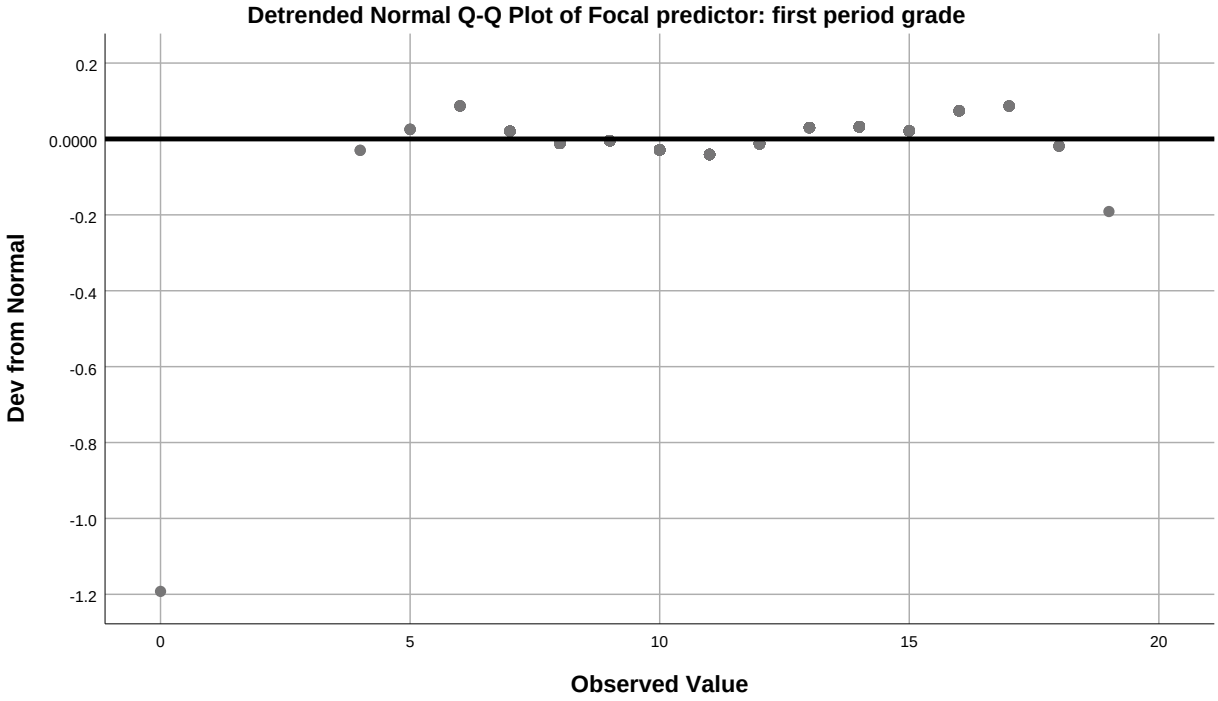
Focal predictor: first period grade

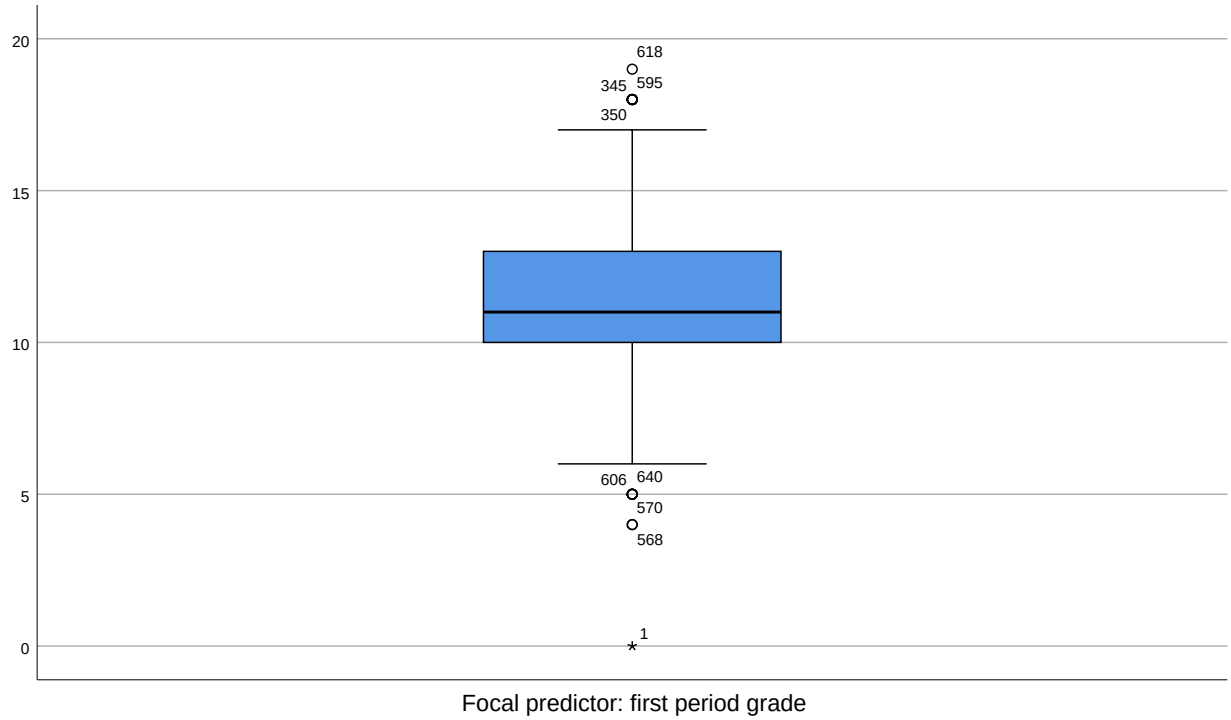
Outcome and Moderator Distribution
Explore final grade and moderator before regression





Outcome and Moderator Distribution
Explore final grade and moderator before regression

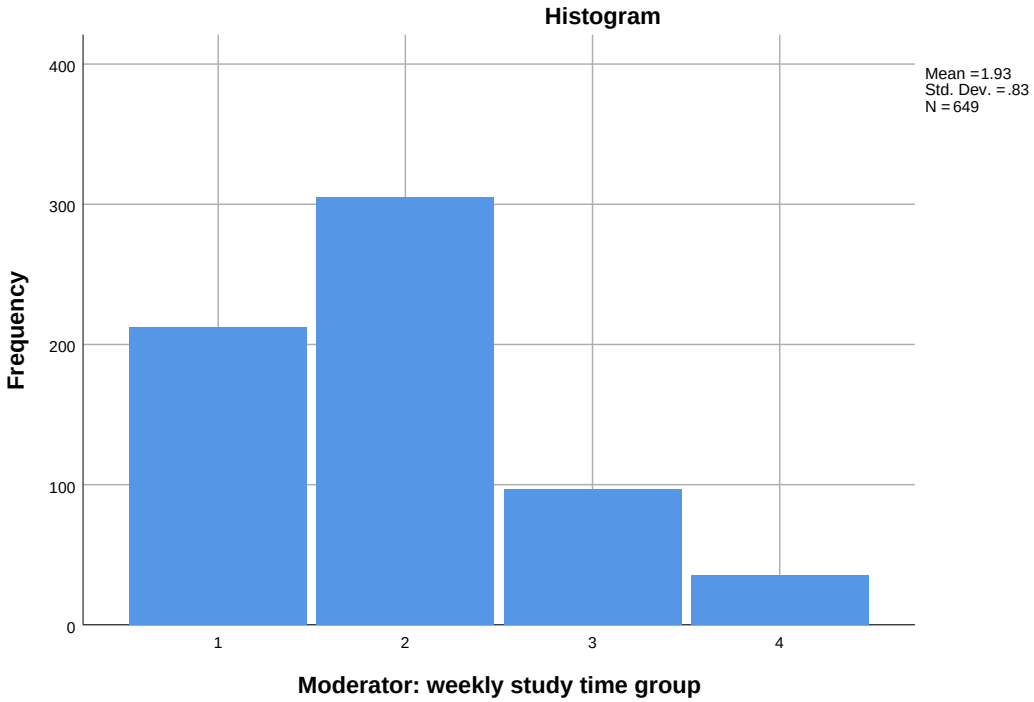




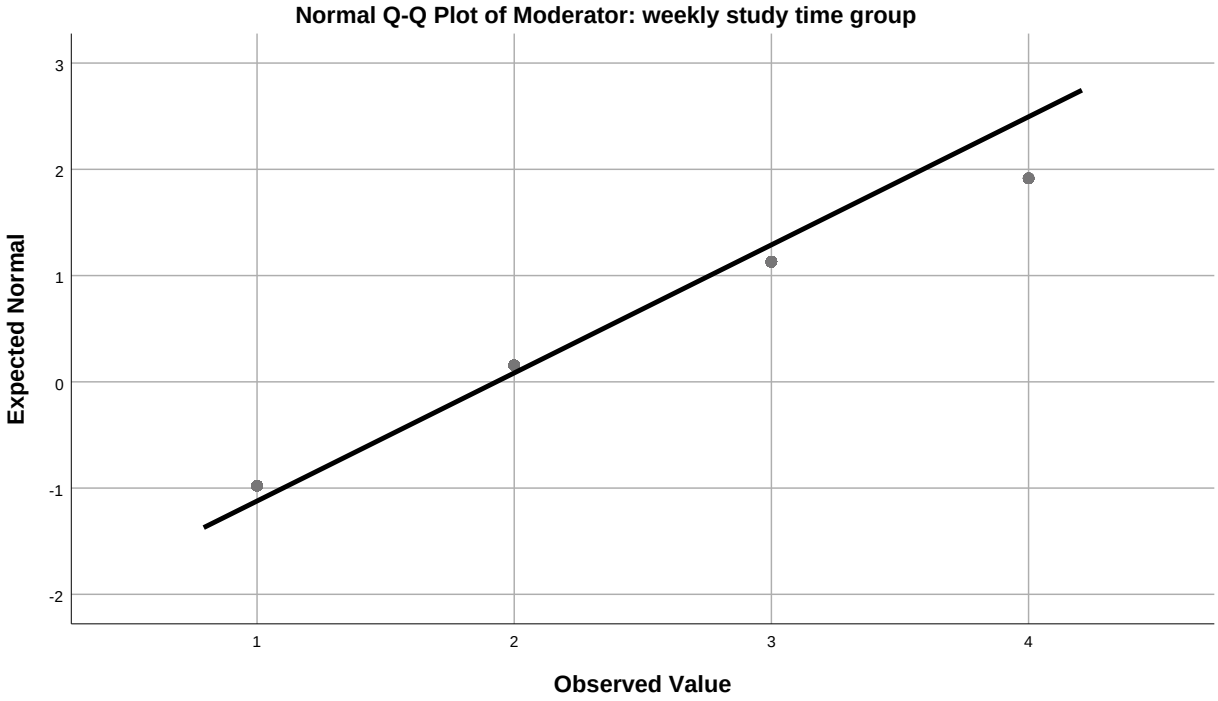
Focal predictor: first period grade

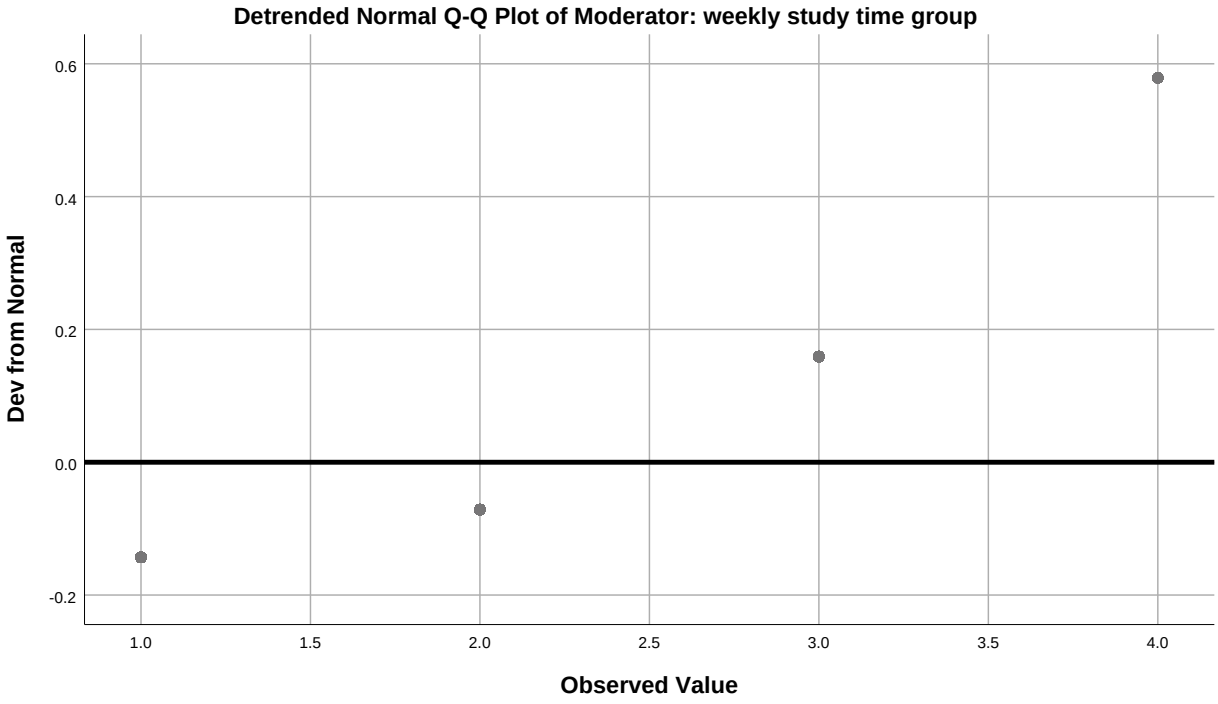
Outcome and Moderator Distribution
Explore final grade and moderator before regression

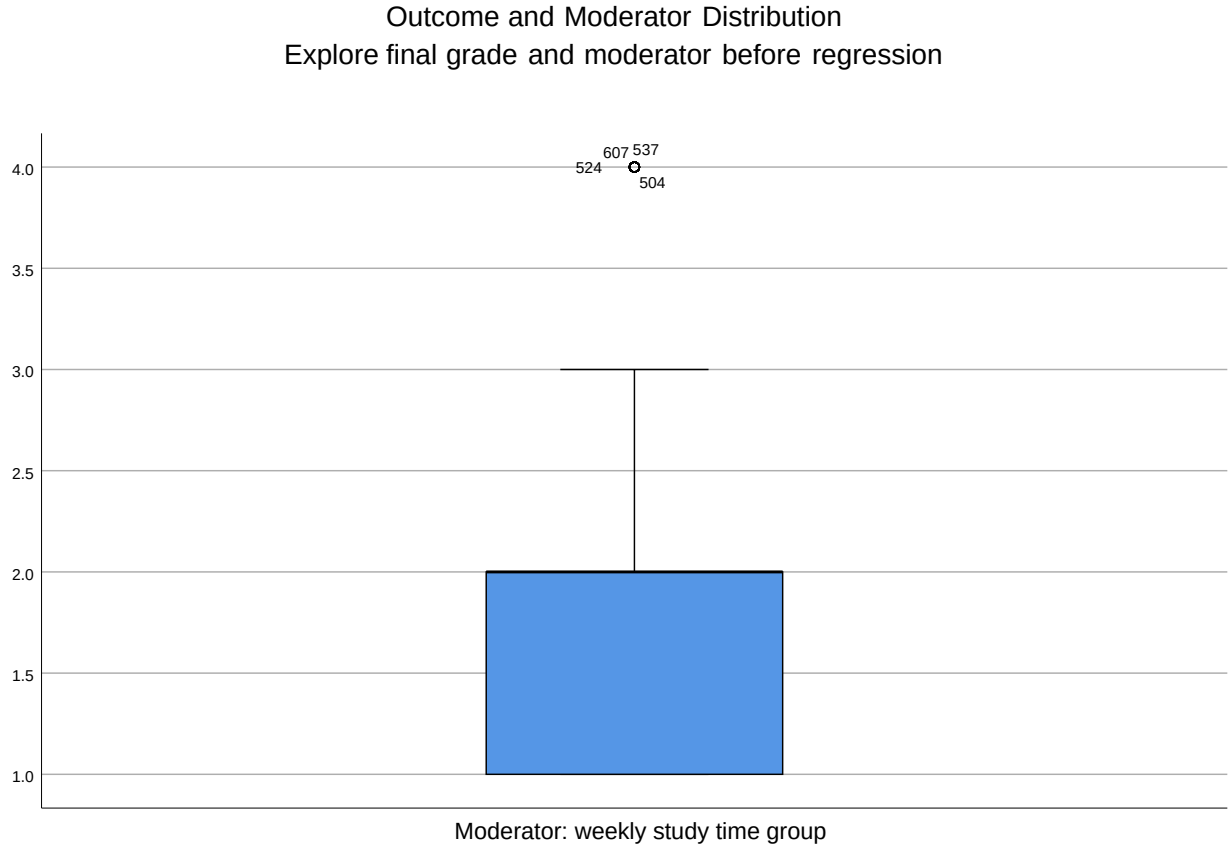
Moderator: weekly study time group



Outcome and Moderator Distribution
Explore final grade and moderator before regression

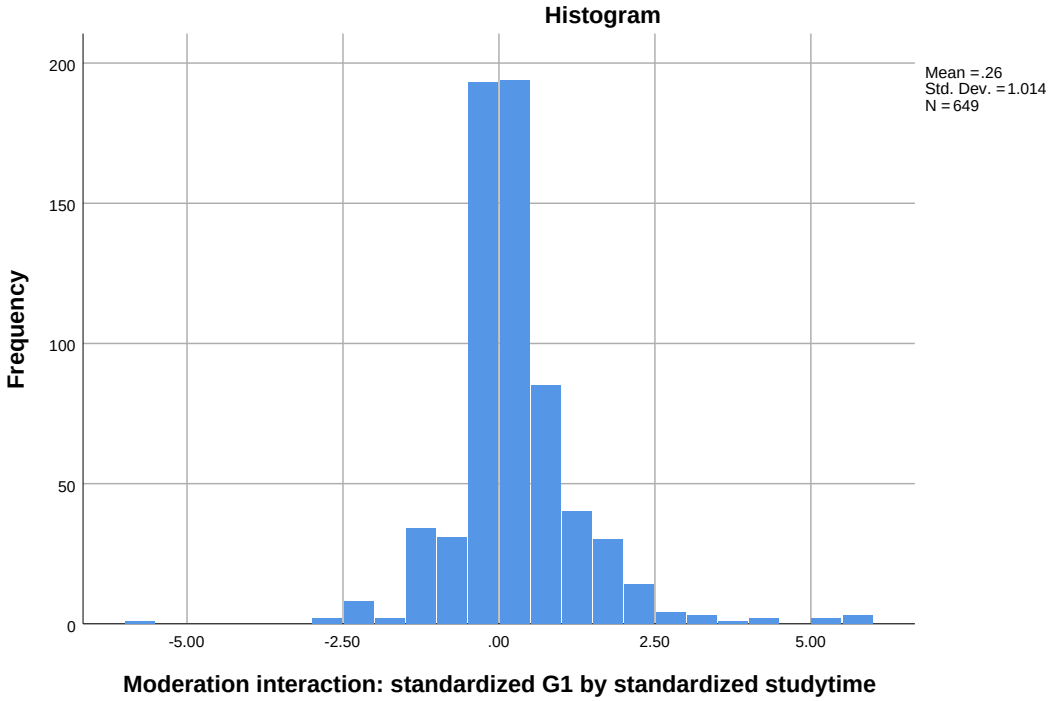


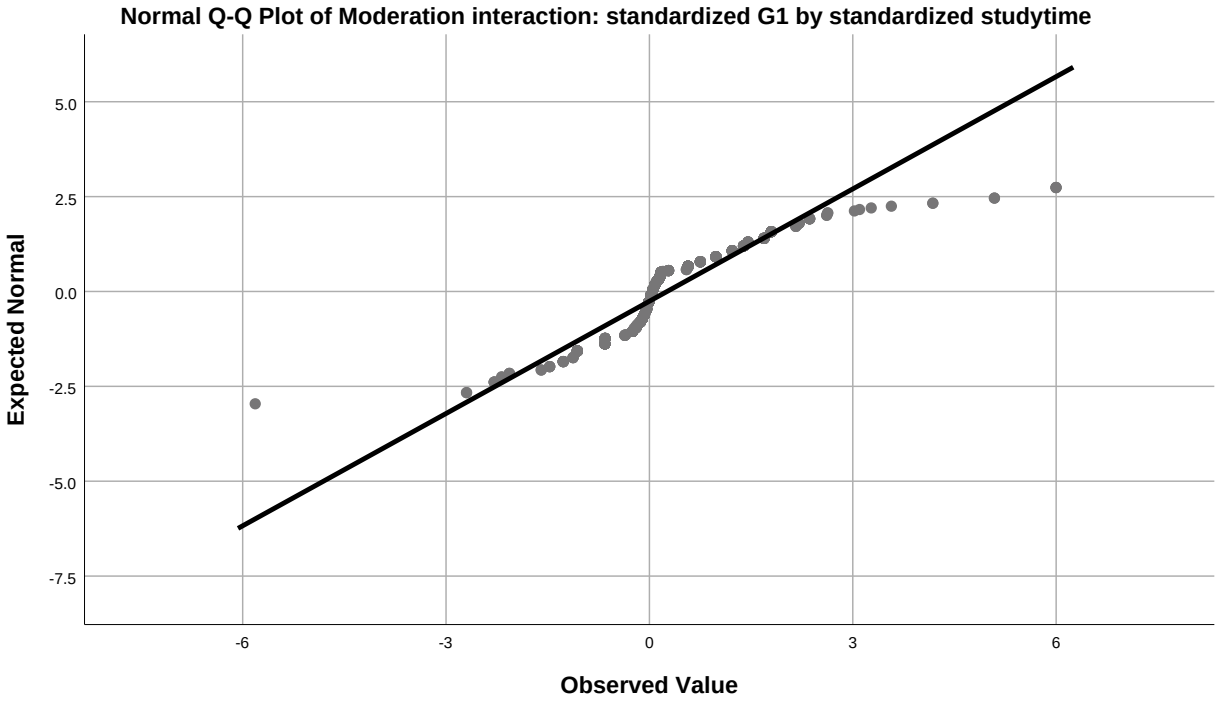




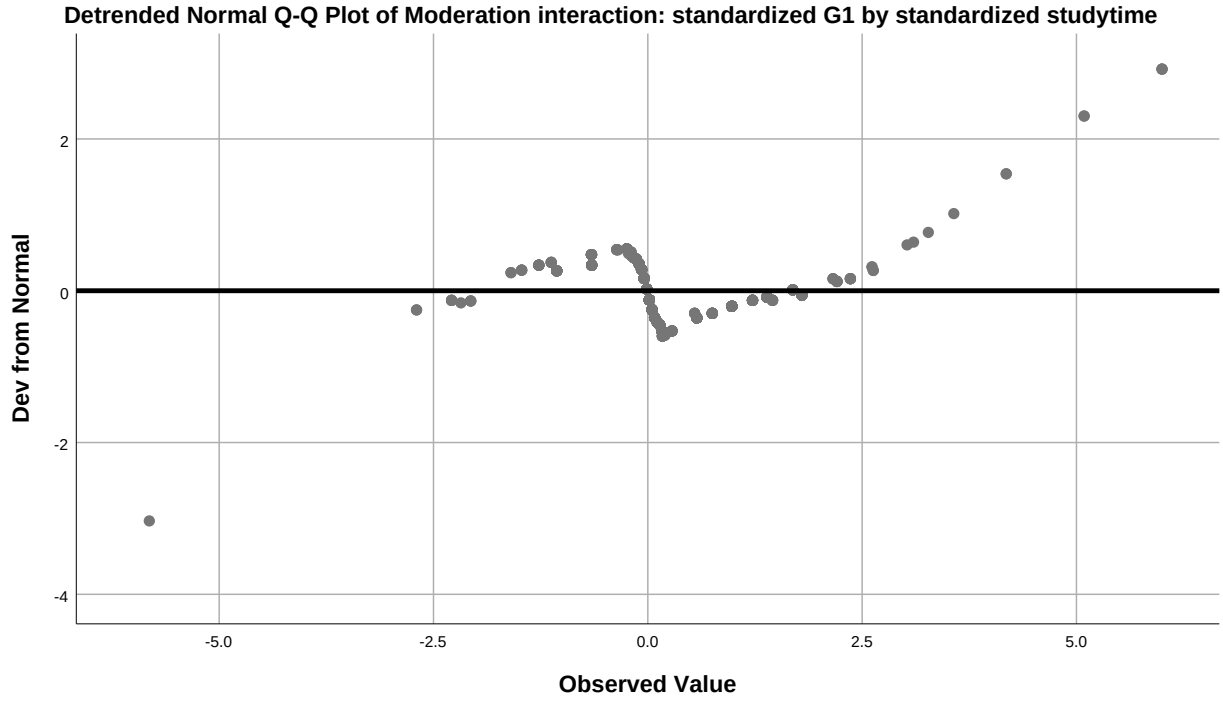
Moderation interaction: standardized G1 by standardized studytime

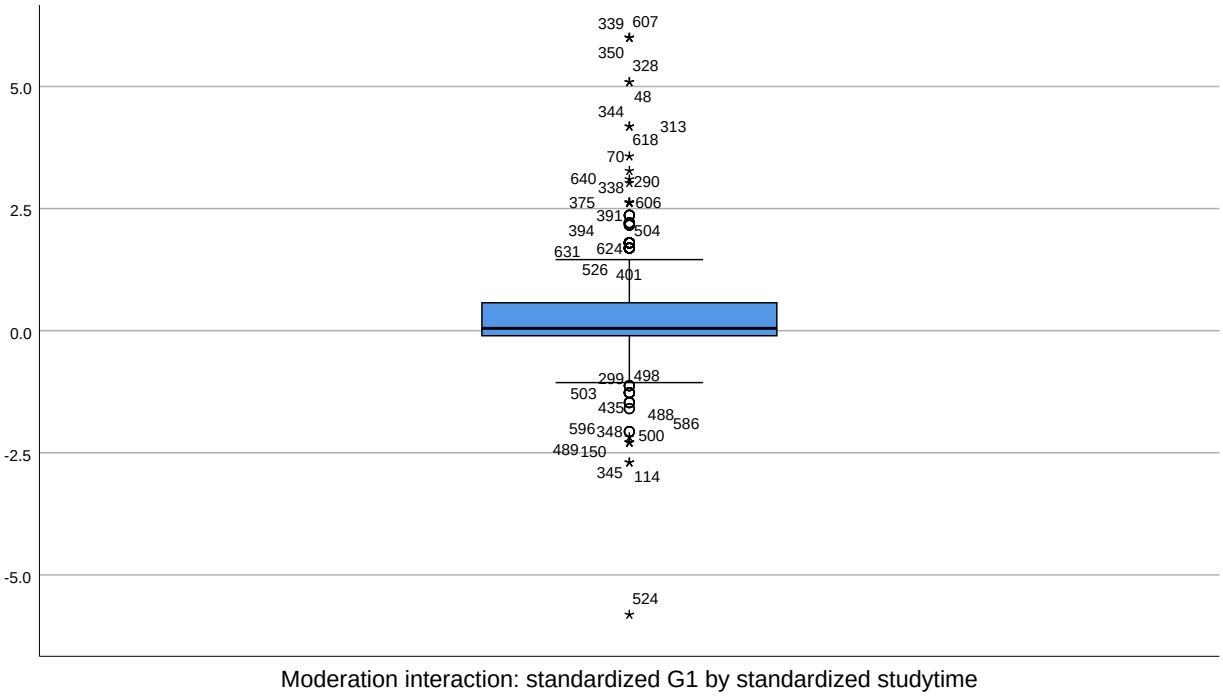
Outcome and Moderator Distribution
Explore final grade and moderator before regression





Outcome and Moderator Distribution
Explore final grade and moderator before regression





Moderation interaction: standardized G1 by standardized studytime

Predictor Outcome Scatterplot by Moderator

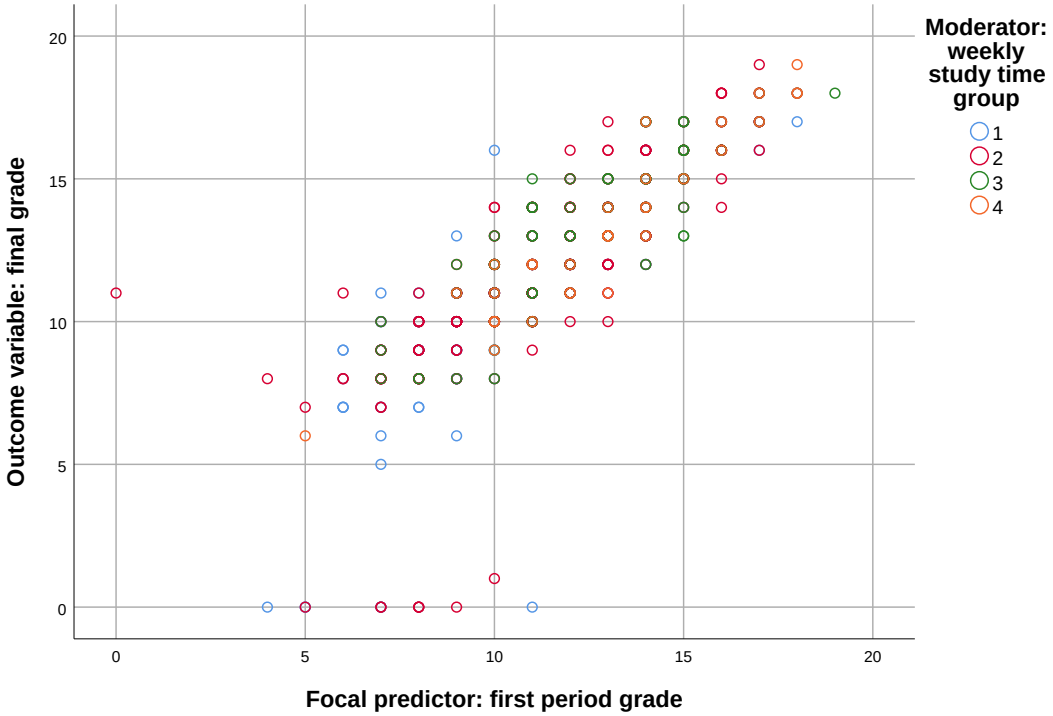
Predictor Outcome Scatterplot by Moderator
Visual context for possible moderation

Graph

Notes

Output Created		11-JUL-2026 16:55:17
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT(BIVAR)=G1 WITH G3 BY studytime /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.22
	Elapsed Time	00:00:00.21

Predictor Outcome Scatterplot by Moderator
Visual context for possible moderation



Main Effects Regression Model

Main Effects Regression Model
Main predictor and moderator entered before interaction

Regression

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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 cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA COLLIN CI(95) CHANGE /DEPENDENT G3 /METHOD=ENTER ZG1 Zstudytime ZG2 Zfailures Zabsences Zage ZMedu ZFedu Ztraveltime Zfamrel Zfreetime Zgoout ZDalc ZWalc Zhealth school_MS sex_M address_U higher_yes internet_yes /SAVE PRED (main_pred) RESID (main_resid).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.06

Main Effects Regression Model
Main predictor and moderator entered before interaction

Notes

	Memory Required	24528 bytes
	Additional Memory Required for Residual Plots	0 bytes
Variables Created or Modified	main_pred	Unstandardized Predicted Value
	main_resid	Unstandardized Residual

Main Effects Regression Model
Main predictor and moderator entered before interaction

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Internet access dummy: yes, Zscore(age), Zscore (health), Standardized moderator: studytime, Zscore (freetime), Zscore (famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore (traveltime), Zscore (goout), Zscore (failures), School dummy: 1 = MS, 0 = GP, Zscore(G2), Zscore (Medu), Zscore(Walc), Standardized focal predictor: G1[b]	.	Enter

a. Dependent Variable: Outcome variable: final grade

b.

Main Effects Regression Model
Main predictor and moderator entered before interaction

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.925[a]	.855	.850	1.250	.855	185.170	20

Model Summary[b]

Model	Change Statistics	
	df2	Sig. F Change
1	628	.000

a. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1

b. Dependent Variable: Outcome variable: final grade

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5782.675	20	289.134	185.170	.000[b]
	Residual	980.592	628	1.561		
	Total	6763.267	648			

a. Dependent Variable: Outcome variable: final grade

b. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1

Main Effects Regression Model
Main predictor and moderator entered before interaction

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	11.685	.225		52.019	.000
	Standardized focal predictor: G1	.359	.102	.111	3.538	.000
	Standardized moderator: studytime	.040	.053	.012	.743	.458
	Zscore(G2)	2.547	.101	.788	25.234	.000
	Zscore(failures)	-.131	.057	-.041	-2.302	.022
	Zscore(absences)	.085	.053	.026	1.600	.110
	Zscore(age)	.048	.055	.015	.885	.377
	Zscore(Medu)	-.056	.068	-.017	-.815	.415
	Zscore(Fedu)	.034	.065	.011	.526	.599
	Zscore(traveltime)	.113	.055	.035	2.069	.039
	Zscore(famrel)	-.034	.052	-.011	-.669	.504
	Zscore(freetime)	-.028	.054	-.009	-.516	.606
	Zscore(goout)	-.022	.058	-.007	-.385	.701
	Zscore(Dalc)	-.069	.064	-.021	-1.078	.282
	Zscore(Walc)	-.018	.069	-.006	-.265	.791
	Zscore(health)	-.062	.051	-.019	-1.222	.222
	School dummy: 1 = MS, 0 = GP	-.196	.121	-.029	-1.615	.107
	Sex dummy: 1 = male, 0 = female	-.131	.113	-.020	-1.160	.246
	Address dummy: 1 = urban, 0 = rural	.157	.120	.022	1.310	.191
	Higher education intention dummy: yes	.176	.180	.017	.978	.328
	Internet access dummy: yes	.100	.125	.013	.795	.427

Main Effects Regression Model
Main predictor and moderator entered before interaction

Coefficients[a]

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	11.243	12.126
	Standardized focal predictor: G1	.160	.558
	Standardized moderator: studytime	-.065	.144
	Zscore(G2)	2.348	2.745
	Zscore(failures)	-.244	-.019
	Zscore(absences)	-.019	.188
	Zscore(age)	-.059	.156
	Zscore(Medu)	-.190	.078
	Zscore(Fedu)	-.094	.163
	Zscore(traveltime)	.006	.221
	Zscore(famrel)	-.136	.067
	Zscore(freetime)	-.134	.078
	Zscore(goout)	-.136	.092
	Zscore(Dalc)	-.195	.057
	Zscore(Walc)	-.154	.117
	Zscore(health)	-.162	.038
	School dummy: 1 = MS, 0 = GP	-.434	.042
	Sex dummy: 1 = male, 0 = female	-.352	.090
	Address dummy: 1 = urban, 0 = rural	-.078	.393
	Higher education intention dummy: yes	-.177	.530
	Internet access dummy: yes	-.146	.346

a. Dependent Variable: Outcome variable: final grade

Main Effects Regression Model
Main predictor and moderator entered before interaction

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Standardized focal predictor: G1	Standardized moderator: studytime
1	1	4.323	1.000	.00	.00	.00
	2	3.135	1.174	.00	.01	.01
	3	2.034	1.458	.00	.00	.00
	4	1.370	1.776	.00	.01	.00
	5	1.276	1.841	.00	.02	.02
	6	1.163	1.928	.00	.00	.06
	7	1.020	2.059	.00	.01	.00
	8	.928	2.158	.00	.00	.22
	9	.898	2.194	.00	.00	.08
	10	.811	2.308	.00	.01	.42
	11	.774	2.364	.00	.02	.03
	12	.684	2.514	.00	.00	.04
	13	.569	2.755	.00	.00	.00
	14	.486	2.983	.00	.01	.01
	15	.369	3.422	.00	.00	.09
	16	.359	3.470	.00	.00	.00
	17	.302	3.784	.00	.00	.00
	18	.205	4.597	.00	.00	.00
	19	.134	5.687	.02	.14	.01
	20	.128	5.813	.01	.77	.00
	21	.033	11.380	.97	.00	.00

Main Effects Regression Model
Main predictor and moderator entered before interaction

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(G2)	Zscore(failures)	Zscore (absences)	Zscore(age)	Zscore(Medu)
1	1	.00	.00	.00	.00	.00
	2	.01	.02	.00	.01	.01
	3	.00	.00	.01	.00	.04
	4	.01	.03	.09	.02	.02
	5	.02	.01	.02	.02	.02
	6	.00	.07	.02	.24	.00
	7	.01	.00	.01	.04	.03
	8	.00	.03	.31	.06	.03
	9	.00	.01	.01	.06	.02
	10	.01	.04	.24	.06	.00
	11	.01	.07	.05	.00	.00
	12	.00	.20	.01	.08	.00
	13	.00	.32	.02	.18	.00
	14	.01	.17	.09	.15	.01
	15	.00	.00	.04	.01	.06
	16	.00	.00	.04	.01	.41
	17	.00	.00	.00	.00	.30
	18	.00	.00	.00	.00	.02
	19	.19	.00	.00	.04	.01
	20	.71	.00	.00	.01	.00
	21	.00	.01	.00	.02	.02

Main Effects Regression Model
Main predictor and moderator entered before interaction

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Fedu)	Zscore (traveltime)	Zscore(famrel)	Zscore (freetime)	Zscore(goout)
1	1	.00	.00	.00	.00	.00
	2	.01	.01	.00	.00	.01
	3	.04	.01	.00	.02	.04
	4	.02	.04	.11	.10	.06
	5	.02	.04	.10	.05	.01
	6	.00	.03	.04	.06	.05
	7	.04	.02	.03	.05	.05
	8	.02	.03	.04	.01	.00
	9	.04	.27	.24	.08	.01
	10	.00	.11	.03	.00	.00
	11	.01	.19	.27	.16	.00
	12	.01	.00	.03	.07	.20
	13	.00	.01	.00	.31	.28
	14	.03	.08	.04	.00	.01
	15	.05	.06	.00	.00	.00
	16	.46	.02	.01	.02	.08
	17	.23	.03	.02	.05	.17
	18	.00	.03	.01	.01	.00
	19	.00	.03	.00	.00	.00
	20	.00	.00	.01	.00	.00
	21	.00	.00	.00	.00	.00

Main Effects Regression Model
Main predictor and moderator entered before interaction

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Dalc)	Zscore(Walc)	Zscore(health)	School dummy: 1 = MS, 0 = GP	Sex dummy: 1 = male, 0 = female
1	1	.00	.00	.00	.01	.01
	2	.01	.01	.00	.01	.00
	3	.04	.05	.01	.01	.00
	4	.00	.00	.01	.01	.00
	5	.04	.03	.12	.00	.00
	6	.01	.02	.02	.00	.01
	7	.01	.01	.42	.02	.00
	8	.02	.00	.05	.02	.00
	9	.00	.00	.02	.01	.01
	10	.00	.00	.03	.01	.00
	11	.04	.01	.12	.00	.00
	12	.06	.00	.16	.06	.08
	13	.07	.02	.00	.04	.00
	14	.06	.00	.01	.36	.13
	15	.39	.18	.02	.08	.35
	16	.01	.11	.02	.08	.15
	17	.22	.53	.00	.00	.19
	18	.00	.01	.00	.05	.00
	19	.00	.00	.01	.11	.01
	20	.00	.00	.00	.05	.00
	21	.00	.01	.00	.08	.03

Main Effects Regression Model
Main predictor and moderator entered before interaction

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions: Address dummy: 1 = urban, 0 = rural	Higher education intention dummy: yes	Internet access dummy: yes
1	1	.01	.00	.01
	2	.00	.00	.00
	3	.00	.00	.00
	4	.00	.00	.00
	5	.00	.00	.00
	6	.00	.00	.00
	7	.00	.00	.00
	8	.00	.00	.00
	9	.01	.00	.00
	10	.00	.00	.00
	11	.00	.00	.00
	12	.00	.00	.00
	13	.01	.00	.00
	14	.01	.00	.00
	15	.03	.00	.02
	16	.02	.00	.00
	17	.00	.00	.02
	18	.61	.00	.41
	19	.16	.23	.34
	20	.04	.06	.07
	21	.09	.69	.12

a. Dependent Variable: Outcome variable: final grade

Main Effects Regression Model
Main predictor and moderator entered before interaction

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.04	19.50	11.91	2.987	649
Residual	-8.948	5.613	.000	1.230	649
Std. Predicted Value	-3.971	2.543	.000	1.000	649
Std. Residual	-7.161	4.492	.000	.984	649

a. Dependent Variable: Outcome variable: final grade

Moderated Regression Model

Moderated Regression Model
Interaction term added to test moderation

Regression

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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 cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA COLLIN CI(95) CHANGE /DEPENDENT G3 /METHOD=ENTER ZG1 Zstudytime ZG2 Zfailures Zabsences Zage ZMedu ZFedu Ztraveltime Zfamrel Zfreetime Zgoout ZDalc ZWalc Zhealth school_MS sex_M address_U higher_yes internet_yes /METHOD=ENTER G1_x_studytime /SAVE PRED(mod_pred) RESID(mod_resid).

Moderated Regression Model
Interaction term added to test moderation

Notes

Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.05
	Memory Required	26400 bytes
	Additional Memory Required for Residual Plots	0 bytes
Variables Created or Modified	mod_pred	Unstandardized Predicted Value
	mod_resid	Unstandardized Residual

Moderated Regression Model
Interaction term added to test moderation

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Internet access dummy: yes, Zscore(age), Zscore (health), Standardized moderator: studytime, Zscore (freetime), Zscore (famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore (traveltime), Zscore (goout), Zscore (failures), School dummy: 1 = MS, 0 = GP, Zscore(G2), Zscore (Medu), Zscore(Walc), Standardized focal predictor: G1[b]	.	Enter

Moderated Regression Model
Interaction term added to test moderation

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
2	Moderation interaction: standardized G1 by standardized studytime[b]	.	Enter

a. Dependent Variable: Outcome variable: final grade

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.925[a]	.855	.850	1.250	.855	185.170	20
2	.925[b]	.856	.851	1.246	.001	4.295	1

Model Summary[c]

Model	Change Statistics	
	df2	Sig. F Change
1	628	.000
2	627	.039

a. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1

b. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1, Moderation interaction: standardized G1 by standardized studytime

c.

Moderated Regression Model
Interaction term added to test moderation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5782.675	20	289.134	185.170	.000[b]
	Residual	980.592	628	1.561		
	Total	6763.267	648			
2	Regression	5789.347	21	275.683	177.482	.000[c]
	Residual	973.920	627	1.553		
	Total	6763.267	648			

a. Dependent Variable: Outcome variable: final grade

b. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1

c. Predictors: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore (absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore (G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1, Moderation interaction: standardized G1 by standardized studytime

Moderated Regression Model
Interaction term added to test moderation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	11.685	.225		52.019	.000
	Standardized focal predictor: G1	.359	.102	.111	3.538	.000
	Standardized moderator: studytime	.040	.053	.012	.743	.458
	Zscore(G2)	2.547	.101	.788	25.234	.000
	Zscore(failures)	-.131	.057	-.041	-2.302	.022
	Zscore(absences)	.085	.053	.026	1.600	.110
	Zscore(age)	.048	.055	.015	.885	.377
	Zscore(Medu)	-.056	.068	-.017	-.815	.415
	Zscore(Fedu)	.034	.065	.011	.526	.599
	Zscore(traveltime)	.113	.055	.035	2.069	.039
	Zscore(famrel)	-.034	.052	-.011	-.669	.504
	Zscore(freetime)	-.028	.054	-.009	-.516	.606
	Zscore(goout)	-.022	.058	-.007	-.385	.701
	Zscore(Dalc)	-.069	.064	-.021	-1.078	.282
	Zscore(Walc)	-.018	.069	-.006	-.265	.791
	Zscore(health)	-.062	.051	-.019	-1.222	.222
	School dummy: 1 = MS, 0 = GP	-.196	.121	-.029	-1.615	.107
	Sex dummy: 1 = male, 0 = female	-.131	.113	-.020	-1.160	.246
	Address dummy: 1 = urban, 0 = rural	.157	.120	.022	1.310	.191
	Higher education intention dummy: yes	.176	.180	.017	.978	.328
	Internet access dummy: yes	.100	.125	.013	.795	.427
2	(Constant)	11.736	.225		52.069	.000
	Standardized focal predictor: G1	.365	.101	.113	3.602	.000
	Standardized moderator: studytime	.054	.054	.017	1.002	.317
	Zscore(G2)	2.552	.101	.790	25.346	.000

Moderated Regression Model
Interaction term added to test moderation

Coefficients[a]

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	11.243	12.126
	Standardized focal predictor: G1	.160	.558
	Standardized moderator: studytime	-.065	.144
	Zscore(G2)	2.348	2.745
	Zscore(failures)	-.244	-.019
	Zscore(absences)	-.019	.188
	Zscore(age)	-.059	.156
	Zscore(Medu)	-.190	.078
	Zscore(Fedu)	-.094	.163
	Zscore(traveltime)	.006	.221
	Zscore(famrel)	-.136	.067
	Zscore(freetime)	-.134	.078
	Zscore(goout)	-.136	.092
	Zscore(Dalc)	-.195	.057
	Zscore(Walc)	-.154	.117
	Zscore(health)	-.162	.038
	School dummy: 1 = MS, 0 = GP	-.434	.042
	Sex dummy: 1 = male, 0 = female	-.352	.090
	Address dummy: 1 = urban, 0 = rural	-.078	.393
	Higher education intention dummy: yes	-.177	.530
	Internet access dummy: yes	-.146	.346
2	(Constant)	11.293	12.178
	Standardized focal predictor: G1	.166	.564
	Standardized moderator: studytime	-.051	.159
	Zscore(G2)	2.354	2.750

Moderated Regression Model
Interaction term added to test moderation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	Zscore(failures)	-.125	.057	-.039	-2.199	.028
	Zscore(absences)	.080	.053	.025	1.513	.131
	Zscore(age)	.054	.055	.017	.992	.321
	Zscore(Medu)	-.052	.068	-.016	-.767	.443
	Zscore(Fedu)	.019	.066	.006	.290	.772
	Zscore(traveltime)	.114	.055	.035	2.085	.037
	Zscore(famrel)	-.029	.051	-.009	-.567	.571
	Zscore(freetime)	-.032	.054	-.010	-.586	.558
	Zscore(goout)	-.026	.058	-.008	-.440	.660
	Zscore(Dalc)	-.066	.064	-.020	-1.033	.302
	Zscore(Walc)	-.016	.069	-.005	-.238	.812
	Zscore(health)	-.064	.051	-.020	-1.254	.210
	School dummy: 1 = MS, 0 = GP	-.191	.121	-.028	-1.579	.115
	Sex dummy: 1 = male, 0 = female	-.129	.112	-.020	-1.145	.253
	Address dummy: 1 = urban, 0 = rural	.147	.120	.021	1.224	.221
	Higher education intention dummy: yes	.142	.180	.014	.787	.431
	Internet access dummy: yes	.114	.125	.015	.912	.362
	Moderation interaction: standardized G1 by standardized studytime	-.104	.050	-.033	-2.073	.039

Moderated Regression Model
Interaction term added to test moderation

Coefficients[a]

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
	Zscore(failures)	-.237	-.013
	Zscore(absences)	-.024	.183
	Zscore(age)	-.053	.161
	Zscore(Medu)	-.186	.081
	Zscore(Fedu)	-.110	.148
	Zscore(traveltime)	.007	.221
	Zscore(famrel)	-.130	.072
	Zscore(freetime)	-.138	.074
	Zscore(goout)	-.139	.088
	Zscore(Dalc)	-.192	.060
	Zscore(Walc)	-.152	.119
	Zscore(health)	-.163	.036
	School dummy: 1 = MS, 0 = GP	-.428	.047
	Sex dummy: 1 = male, 0 = female	-.349	.092
	Address dummy: 1 = urban, 0 = rural	-.089	.382
	Higher education intention dummy: yes	-.212	.496
	Internet access dummy: yes	-.132	.360
	Moderation interaction: standardized G1 by standardized studytime	-.202	-.005

a. Dependent Variable: Outcome variable: final grade

Moderated Regression Model
Interaction term added to test moderation

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Moderation interaction: standardized G1 by standardized studytime	-.033[b]	-2.073	.039	-.082	.932

a. Dependent Variable: Outcome variable: final grade

b. Predictors in the Model: (Constant), Internet access dummy: yes, Zscore(age), Zscore(health), Standardized moderator: studytime, Zscore(freetime), Zscore(famrel), Address dummy: 1 = urban, 0 = rural, Zscore(absences), Zscore(Fedu), Zscore(Dalc), Higher education intention dummy: yes, Sex dummy: 1 = male, 0 = female, Zscore(traveltime), Zscore(goout), Zscore(failures), School dummy: 1 = MS, 0 = GP, Zscore(G2), Zscore(Medu), Zscore(Walc), Standardized focal predictor: G1

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Standardized focal predictor: G1	Standardized moderator: studytime
1	1	4.323	1.000	.00	.00	.00
	2	3.135	1.174	.00	.01	.01
	3	2.034	1.458	.00	.00	.00
	4	1.370	1.776	.00	.01	.00
	5	1.276	1.841	.00	.02	.02
	6	1.163	1.928	.00	.00	.06
	7	1.020	2.059	.00	.01	.00
	8	.928	2.158	.00	.00	.22
	9	.898	2.194	.00	.00	.08
	10	.811	2.308	.00	.01	.42
	11	.774	2.364	.00	.02	.03
	12	.684	2.514	.00	.00	.04
	13	.569	2.755	.00	.00	.00
	14	.486	2.983	.00	.01	.01
	15	.369	3.422	.00	.00	.09

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

		Variance Proportions				
Model	Dimension	Zscore(G2)	Zscore(failures)	Zscore (absences)	Zscore(age)	Zscore(Medu)
1	1	.00	.00	.00	.00	.00
	2	.01	.02	.00	.01	.01
	3	.00	.00	.01	.00	.04
	4	.01	.03	.09	.02	.02
	5	.02	.01	.02	.02	.02
	6	.00	.07	.02	.24	.00
	7	.01	.00	.01	.04	.03
	8	.00	.03	.31	.06	.03
	9	.00	.01	.01	.06	.02
	10	.01	.04	.24	.06	.00
	11	.01	.07	.05	.00	.00
	12	.00	.20	.01	.08	.00
	13	.00	.32	.02	.18	.00
	14	.01	.17	.09	.15	.01
	15	.00	.00	.04	.01	.06

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Fedu)	Zscore (traveltime)	Zscore(famrel)	Zscore (freetime)	Zscore(goout)
1	1	.00	.00	.00	.00	.00
	2	.01	.01	.00	.00	.01
	3	.04	.01	.00	.02	.04
	4	.02	.04	.11	.10	.06
	5	.02	.04	.10	.05	.01
	6	.00	.03	.04	.06	.05
	7	.04	.02	.03	.05	.05
	8	.02	.03	.04	.01	.00
	9	.04	.27	.24	.08	.01
	10	.00	.11	.03	.00	.00
	11	.01	.19	.27	.16	.00
	12	.01	.00	.03	.07	.20
	13	.00	.01	.00	.31	.28
	14	.03	.08	.04	.00	.01
	15	.05	.06	.00	.00	.00

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Dalc)	Zscore(Walc)	Zscore(health)	School dummy: 1 = MS, 0 = GP	Sex dummy: 1 = male, 0 = female
1	1	.00	.00	.00	.01	.01
	2	.01	.01	.00	.01	.00
	3	.04	.05	.01	.01	.00
	4	.00	.00	.01	.01	.00
	5	.04	.03	.12	.00	.00
	6	.01	.02	.02	.00	.01
	7	.01	.01	.42	.02	.00
	8	.02	.00	.05	.02	.00
	9	.00	.00	.02	.01	.01
	10	.00	.00	.03	.01	.00
	11	.04	.01	.12	.00	.00
	12	.06	.00	.16	.06	.08
	13	.07	.02	.00	.04	.00
	14	.06	.00	.01	.36	.13
	15	.39	.18	.02	.08	.35

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions: Address dummy: 1 = urban, 0 = rural	Higher education intention dummy: yes	Internet access dummy: yes	Moderation interaction: standardized G1 by standardized studytime
1	1	.01	.00	.01	
	2	.00	.00	.00	
	3	.00	.00	.00	
	4	.00	.00	.00	
	5	.00	.00	.00	
	6	.00	.00	.00	
	7	.00	.00	.00	
	8	.00	.00	.00	
	9	.01	.00	.00	
	10	.00	.00	.00	
	11	.00	.00	.00	
	12	.00	.00	.00	
	13	.01	.00	.00	
	14	.01	.00	.00	
	15	.03	.00	.02	

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Standardized focal predictor: G1	Standardized moderator: studytime
	16	.359	3.470	.00	.00	.00
	17	.302	3.784	.00	.00	.00
	18	.205	4.597	.00	.00	.00
	19	.134	5.687	.02	.14	.01
	20	.128	5.813	.01	.77	.00
	21	.033	11.380	.97	.00	.00
2	1	4.390	1.000	.00	.00	.00
	2	3.136	1.183	.00	.01	.01
	3	2.057	1.461	.00	.00	.01
	4	1.380	1.784	.00	.01	.01
	5	1.307	1.833	.00	.01	.04
	6	1.200	1.913	.00	.00	.04
	7	1.043	2.052	.00	.00	.00
	8	.960	2.139	.00	.01	.11
	9	.898	2.210	.00	.00	.10
	10	.822	2.311	.00	.02	.01
	11	.809	2.330	.00	.00	.38
	12	.755	2.412	.00	.01	.07
	13	.664	2.570	.00	.00	.09
	14	.569	2.777	.00	.00	.00
	15	.486	3.007	.00	.01	.01
	16	.369	3.449	.00	.00	.09
	17	.357	3.507	.00	.00	.00
	18	.301	3.820	.00	.00	.00
	19	.204	4.643	.00	.00	.00
	20	.133	5.736	.02	.15	.02
	21	.128	5.860	.01	.75	.00
	22	.033	11.533	.97	.00	.00

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(G2)	Zscore(failures)	Zscore (absences)	Zscore(age)	Zscore(Medu)
	16	.00	.00	.04	.01	.41
	17	.00	.00	.00	.00	.30
	18	.00	.00	.00	.00	.02
	19	.19	.00	.00	.04	.01
	20	.71	.00	.00	.01	.00
	21	.00	.01	.00	.02	.02
2	1	.00	.00	.00	.00	.00
	2	.01	.02	.00	.01	.01
	3	.00	.00	.01	.00	.04
	4	.01	.02	.07	.00	.03
	5	.01	.00	.05	.08	.00
	6	.00	.09	.01	.18	.00
	7	.00	.00	.00	.00	.01
	8	.01	.01	.27	.00	.07
	9	.00	.00	.03	.04	.02
	10	.02	.05	.08	.19	.00
	11	.00	.01	.19	.01	.00
	12	.01	.10	.05	.08	.00
	13	.00	.17	.02	.02	.00
	14	.00	.32	.02	.17	.00
	15	.01	.18	.09	.14	.01
	16	.00	.00	.05	.01	.05
	17	.00	.00	.04	.01	.39
	18	.00	.00	.00	.00	.32
	19	.00	.00	.00	.00	.02
	20	.21	.00	.00	.04	.01
	21	.69	.00	.00	.00	.00
	22	.00	.01	.00	.02	.02

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Fedu)	Zscore (traveltime)	Zscore(famrel)	Zscore (freetime)	Zscore(goout)
	16	.46	.02	.01	.02	.08
	17	.23	.03	.02	.05	.17
	18	.00	.03	.01	.01	.00
	19	.00	.03	.00	.00	.00
	20	.00	.00	.01	.00	.00
	21	.00	.00	.00	.00	.00
2	1	.00	.00	.00	.00	.00
	2	.01	.01	.00	.00	.01
	3	.04	.01	.00	.02	.04
	4	.03	.04	.08	.08	.08
	5	.01	.01	.09	.05	.00
	6	.00	.06	.08	.05	.01
	7	.01	.01	.02	.08	.09
	8	.06	.04	.03	.00	.00
	9	.03	.24	.27	.08	.01
	10	.00	.03	.11	.00	.00
	11	.01	.21	.00	.00	.00
	12	.00	.09	.16	.20	.02
	13	.02	.00	.06	.03	.18
	14	.00	.01	.00	.31	.28
	15	.03	.08	.04	.00	.01
	16	.04	.06	.00	.00	.00
	17	.45	.02	.01	.03	.09
	18	.25	.03	.02	.05	.17
	19	.00	.03	.01	.01	.00
	20	.00	.03	.00	.00	.00
	21	.00	.01	.01	.00	.00
	22	.00	.00	.00	.00	.00

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		Zscore(Dalc)	Zscore(Walc)	Zscore(health)	School dummy: 1 = MS, 0 = GP	Sex dummy: 1 = male, 0 = female
	16	.01	.11	.02	.08	.15
	17	.22	.53	.00	.00	.19
	18	.00	.01	.00	.05	.00
	19	.00	.00	.01	.11	.01
	20	.00	.00	.00	.05	.00
	21	.00	.01	.00	.08	.03
2	1	.00	.00	.00	.01	.01
	2	.01	.01	.00	.01	.00
	3	.04	.05	.01	.01	.01
	4	.00	.01	.00	.00	.00
	5	.03	.02	.09	.00	.00
	6	.02	.02	.01	.01	.00
	7	.02	.02	.45	.01	.01
	8	.01	.00	.00	.02	.00
	9	.00	.00	.03	.00	.01
	10	.01	.00	.09	.02	.00
	11	.00	.01	.11	.00	.00
	12	.02	.01	.01	.01	.01
	13	.08	.00	.15	.05	.07
	14	.07	.02	.00	.04	.00
	15	.06	.00	.01	.35	.13
	16	.38	.18	.01	.09	.36
	17	.02	.13	.02	.08	.15
	18	.21	.52	.00	.00	.18
	19	.00	.01	.00	.04	.00
	20	.00	.00	.01	.11	.01
	21	.00	.00	.00	.05	.00
	22	.00	.01	.00	.08	.03

Moderated Regression Model
Interaction term added to test moderation

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions: Address dummy: 1 = urban, 0 = rural	Higher education intention dummy: yes	Internet access dummy: yes	Moderation interaction: standardized G1 by standardized studytime
	16	.02	.00	.00	
	17	.00	.00	.02	
	18	.61	.00	.41	
	19	.16	.23	.34	
	20	.04	.06	.07	
	21	.09	.69	.12	
2	1	.01	.00	.01	.00
	2	.00	.00	.00	.00
	3	.00	.00	.00	.01
	4	.00	.00	.00	.02
	5	.00	.00	.00	.05
	6	.00	.00	.00	.05
	7	.00	.00	.00	.07
	8	.01	.00	.00	.09
	9	.00	.00	.00	.00
	10	.00	.00	.00	.30
	11	.00	.00	.00	.06
	12	.00	.00	.00	.17
	13	.00	.00	.00	.14
	14	.01	.00	.00	.00
	15	.01	.00	.00	.00
	16	.04	.00	.02	.00
	17	.02	.00	.01	.01
	18	.00	.00	.02	.01
	19	.62	.00	.41	.01
	20	.15	.23	.34	.00
	21	.04	.07	.08	.00
	22	.09	.70	.12	.01

Moderated Regression Model
Interaction term added to test moderation

a. Dependent Variable: Outcome variable: final grade

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.23	18.99	11.91	2.989	649
Residual	-8.998	5.651	.000	1.226	649
Std. Predicted Value	-4.061	2.369	.000	1.000	649
Std. Residual	-7.220	4.534	.000	.984	649

a. Dependent Variable: Outcome variable: final grade

Moderation with GLM Interaction Context
G1 by studytime interaction tested as continuous moderation

Univariate Analysis of Variance

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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 for all variables in the model.

Moderation with GLM Interaction Context
G1 by studytime interaction tested as continuous moderation

Notes

Syntax		UNIANOVA G3 WITH ZG1 Zstudytime G1_x_studytime ZG2 Zfailures Zabsences Zage ZMedu ZFedu Ztraveltime Zfamrel Zfreetime Zgoout ZDalc ZWalc Zhealth school_MS sex_M address_U higher_yes internet_yes /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /PRINT=DESCRIPTIVE ETASQ PARAMETER HOMOGENEITY /CRITERIA=ALPHA(.05) /DESIGN=ZG1 Zstudytime G1_x_studytime ZG2 Zfailures Zabsences Zage ZMedu ZFedu Ztraveltime Zfamrel Zfreetime Zgoout ZDalc ZWalc Zhealth school_MS sex_M address_U higher_yes internet_yes.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.04

Warnings

The HOMOGENEITY specification in the PRINT subcommand will be ignored because there are no between-subjects factors.

Descriptive Statistics

Dependent Variable: Outcome variable: final grade

Mean	Std. Deviation	N
11.91	3.231	649

Moderation with GLM Interaction Context
G1 by studytime interaction tested as continuous moderation

Tests of Between-Subjects Effects

Dependent Variable: Outcome variable: final grade

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5789.347[a]	21	275.683	177.482	.000	.856
Intercept	4211.234	1	4211.234	2711.151	.000	.812
ZG1	20.156	1	20.156	12.976	.000	.020
Zstudytime	1.559	1	1.559	1.003	.317	.002
G1_x_studytime	6.672	1	6.672	4.295	.039	.007
ZG2	997.851	1	997.851	642.407	.000	.506
Zfailures	7.508	1	7.508	4.834	.028	.008
Zabsences	3.557	1	3.557	2.290	.131	.004
Zage	1.530	1	1.530	.985	.321	.002
ZMedu	.914	1	.914	.589	.443	.001
ZFedu	.131	1	.131	.084	.772	.000
Ztraveltime	6.754	1	6.754	4.348	.037	.007
Zfamrel	.499	1	.499	.321	.571	.001
Zfreetime	.534	1	.534	.344	.558	.001
Zgoout	.301	1	.301	.194	.660	.000
ZDalc	1.659	1	1.659	1.068	.302	.002
ZWalc	.088	1	.088	.057	.812	.000
Zhealth	2.441	1	2.441	1.571	.210	.002
school_MS	3.871	1	3.871	2.492	.115	.004
sex_M	2.037	1	2.037	1.311	.253	.002
address_U	2.328	1	2.328	1.499	.221	.002
higher_yes	.963	1	.963	.620	.431	.001
internet_yes	1.291	1	1.291	.831	.362	.001
Error	973.920	627	1.553			
Total	98761.000	649				
Corrected Total	6763.267	648				

a. R Squared = .856 (Adjusted R Squared = .851)

Moderation with GLM Interaction Context
G1 by studytime interaction tested as continuous moderation

Parameter Estimates

Dependent Variable: Outcome variable: final grade

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	11.736	.225	52.069	.000	11.293	12.178
ZG1	.365	.101	3.602	.000	.166	.564
Zstudytime	.054	.054	1.002	.317	-.051	.159
G1_x_studytime	-.104	.050	-2.073	.039	-.202	-.005
ZG2	2.552	.101	25.346	.000	2.354	2.750
Zfailures	-.125	.057	-2.199	.028	-.237	-.013
Zabsences	.080	.053	1.513	.131	-.024	.183
Zage	.054	.055	.992	.321	-.053	.161
ZMedu	-.052	.068	-.767	.443	-.186	.081
ZFedu	.019	.066	.290	.772	-.110	.148
Ztraveltime	.114	.055	2.085	.037	.007	.221
Zfamrel	-.029	.051	-.567	.571	-.130	.072
Zfreetime	-.032	.054	-.586	.558	-.138	.074
Zgoout	-.026	.058	-.440	.660	-.139	.088
ZDalc	-.066	.064	-1.033	.302	-.192	.060
ZWalc	-.016	.069	-.238	.812	-.152	.119
Zhealth	-.064	.051	-1.254	.210	-.163	.036
school_MS	-.191	.121	-1.579	.115	-.428	.047
sex_M	-.129	.112	-1.145	.253	-.349	.092
address_U	.147	.120	1.224	.221	-.089	.382
higher_yes	.142	.180	.787	.431	-.212	.496
internet_yes	.114	.125	.912	.362	-.132	.360

Moderation with GLM Interaction Context
G1 by studytime interaction tested as continuous moderation

Parameter Estimates

Dependent Variable: Outcome variable: final grade

Parameter	Partial Eta Squared
Intercept	.812
ZG1	.020
Zstudytime	.002
G1_x_studytime	.007
ZG2	.506
Zfailures	.008
Zabsences	.004
Zage	.002
ZMedu	.001
ZFedu	.000
Ztraveltime	.007
Zfamrel	.001
Zfreetime	.001
Zgoout	.000
ZDalc	.002
ZWalc	.000
Zhealth	.002
school_MS	.004
sex_M	.002
address_U	.002
higher_yes	.001
internet_yes	.001

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model

Descriptives

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	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=main_pred main_resid mod_pred mod_resid /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model

Descriptive Statistics

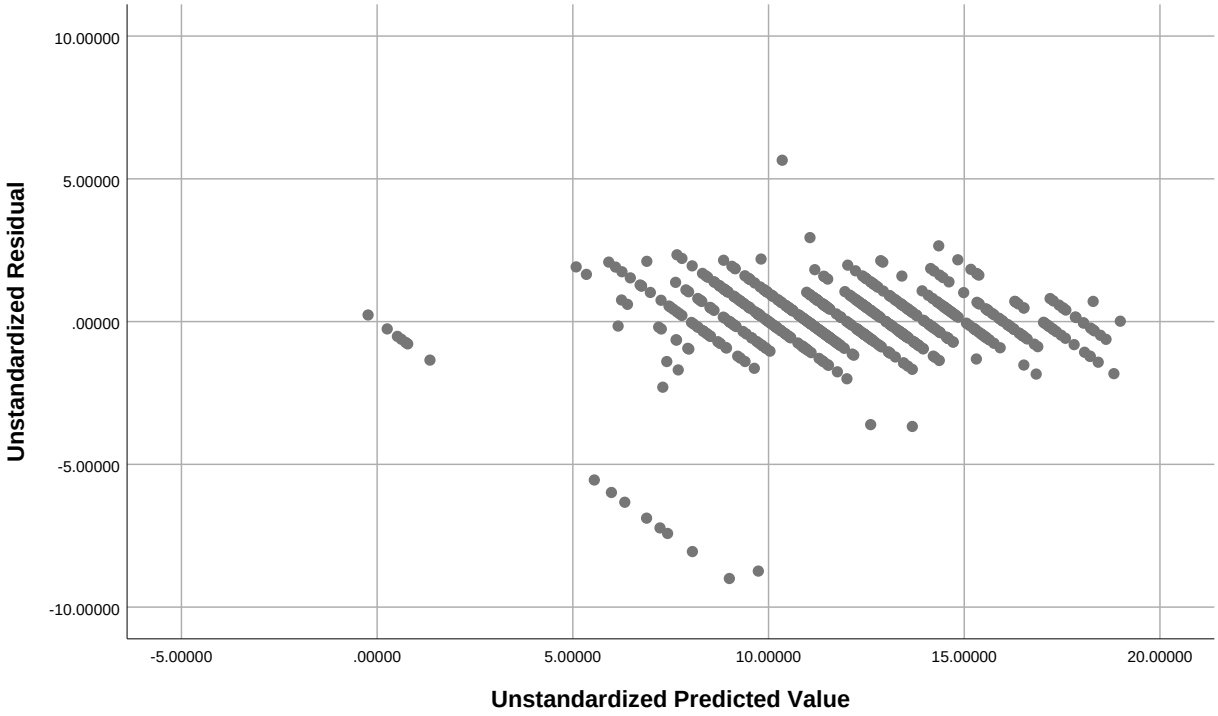
	N	Minimum	Maximum	Mean	Std. Deviation
Unstandardized Predicted Value	649	.04403	19.50296	11.9060092	2.98728655
Unstandardized Residual	649	-8.94812	5.61298	.0000000	1.23014586
Unstandardized Predicted Value	649	-.23170	18.98631	11.9060092	2.98900941
Unstandardized Residual	649	-8.99839	5.65077	.0000000	1.22595371
Valid N (listwise)	649				

Graph

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT(BIVAR)=mod_pred WITH mod_resid /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.36
	Elapsed Time	00:00:00.23

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model



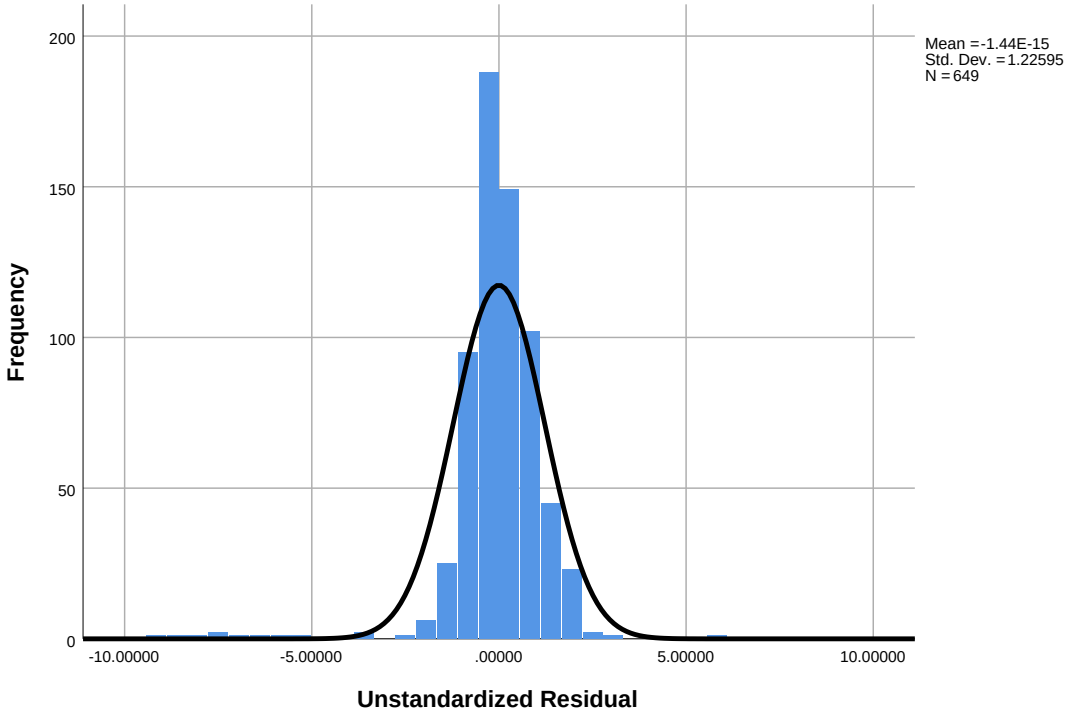
Graph

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /HISTOGRAM(NORMAL) =mod_resid.
Resources	Processor Time	00:00:00.22
	Elapsed Time	00:00:00.18

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model



Graph

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model

Notes

Output Created		11-JUL-2026 16:55:18
Comments		
Input	Data	D:\DATA ANALYSIS\H Regression Tests and Models\Moderated Regression\SPSS_Output\sav\Moderated-Regression-data.sav
	Active Dataset	ModeratedRegressionData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT(BIVAR)=G1_x_studytime WITH mod_resid /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.37
	Elapsed Time	00:00:00.22

Moderated Regression Diagnostics
Residual and prediction diagnostics for moderated model