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Moderated Mediation

Moderated Mediation
Import data

Moderated Mediation Variable Preparation

>Warning # 2004. Command name: SUBTITLE

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

Moderated Mediation Variable Preparation
Create centered predictor, mediator, moderator and interacti

Moderated Mediation Prepared Data Summary

Moderated Mediation Prepared Data Summary
Main variables, centered variables, and categorical context

Frequencies

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

Statistics

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

Statistics

		schoolsup_yes	famsup_yes	activities_yes
N	Valid	649	649	649
	Missing	0	0	0

Frequency Table

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	

Moderated Mediation Prepared Data Summary
Main variables, centered variables, and categorical context

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	

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	

schoolsup_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	

famsup_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	

Moderated Mediation Prepared Data Summary
Main variables, centered variables, and categorical context

activities_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	

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Predictor X: first period grade	649	.000	19.000	11.39908	2.745265
Mediator M: second period grade	649	.000	19.000	11.57011	2.913639
Outcome Y: final grade	649	.000	19.000	11.90601	3.230656
Moderator W: weekly study time group	649	1	4	1.93	.830
Centered predictor X: G1 - mean(G1)	649	-11.399	7.601	.00000	2.745265
Centered mediator M: G2 - mean(G2)	649	-11.570	7.430	.00000	2.913639
Centered moderator W: studytime - mean (studytime)	649	-.931	2.069	.00000	.829510
Interaction term: centered G2 x centered studytime	649	-11.526	15.375	.58036	2.386875
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
health	649	1	5	3.54	1.446
famrel	649	1	5	3.93	.956
Valid N (listwise)	649				

Moderated Mediation Visual Diagnostics

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

Explore

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Predictor X: first period grade	649	100.0%	0	0.0%	649	100.0%
Mediator M: second period grade	649	100.0%	0	0.0%	649	100.0%
Outcome Y: final grade	649	100.0%	0	0.0%	649	100.0%
Moderator W: weekly study time group	649	100.0%	0	0.0%	649	100.0%
Centered predictor X: G1 - mean(G1)	649	100.0%	0	0.0%	649	100.0%
Centered mediator M: G2 - mean(G2)	649	100.0%	0	0.0%	649	100.0%
Centered moderator W: studytime - mean (studytime)	649	100.0%	0	0.0%	649	100.0%
Interaction term: centered G2 x centered studytime	649	100.0%	0	0.0%	649	100.0%

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

Descriptives

			Statistic	Std. Error
Predictor X: first period grade	Mean		11.39908	.107761
	95% Confidence Interval for Mean	Lower Bound	11.18747	
		Upper Bound	11.61068	
	5% Trimmed Mean		11.38615	
	Median		11.00000	
	Variance		7.536	
	Std. Deviation		2.745265	
	Minimum		.000	
	Maximum		19.000	
	Range		19.000	
	Interquartile Range		3.000	
	Skewness		-.003	.096
	Kurtosis		.037	.192
Mediator M: second period grade	Mean		11.57011	.114370
	95% Confidence Interval for Mean	Lower Bound	11.34553	
		Upper Bound	11.79469	
	5% Trimmed Mean		11.60110	
	Median		11.00000	
	Variance		8.489	
	Std. Deviation		2.913639	
	Minimum		.000	
	Maximum		19.000	
	Range		19.000	
	Interquartile Range		3.000	
	Skewness		-.360	.096
	Kurtosis		1.662	.192
Outcome Y: final grade	Mean		11.90601	.126814
	95% Confidence Interval for Mean	Lower Bound	11.65699	
		Upper Bound	12.15503	
	5% Trimmed Mean		12.05744	
	Median		12.00000	
	Variance		10.437	

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

Descriptives

		Statistic	Std. Error
	Std. Deviation	3.230656	
	Minimum	.000	
	Maximum	19.000	
	Range	19.000	
	Interquartile Range	4.000	
	Skewness	-.913	.096
	Kurtosis	2.712	.192
Moderator W: 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
Centered predictor X: G1 - mean(G1)	Mean	.00000	.107761
	95% Confidence Interval for Mean	Lower Bound	-.21160
		Upper Bound	.21160
	5% Trimmed Mean	-.01293	
	Median	-.39908	
	Variance	7.536	
	Std. Deviation	2.745265	
	Minimum	-11.399	
	Maximum	7.601	
	Range	19.000	
	Interquartile Range	3.000	
	Skewness	-.003	.096

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

Descriptives

		Statistic	Std. Error
	Kurtosis	.037	.192
Centered mediator M: G2 - mean(G2)	Mean	.00000	.114370
	95% Confidence Interval for Mean	Lower Bound	-.22458
		Upper Bound	.22458
	5% Trimmed Mean	.03099	
	Median	-.57011	
	Variance	8.489	
	Std. Deviation	2.913639	
	Minimum	-11.570	
	Maximum	7.430	
	Range	19.000	
	Interquartile Range	3.000	
	Skewness	-.360	.096
	Kurtosis	1.662	.192
Centered moderator W: studytime - mean (studytime)	Mean	.00000	.032561
	95% Confidence Interval for Mean	Lower Bound	-.06394
		Upper Bound	.06394
	5% Trimmed Mean	-.06326	
	Median	.06934	
	Variance	.688	
	Std. Deviation	.829510	
	Minimum	-.931	
	Maximum	2.069	
	Range	3.000	
	Interquartile Range	1.000	
	Skewness	.700	.096
	Kurtosis	.038	.192
Interaction term: centered G2 x centered studytime	Mean	.58036	.093693
	95% Confidence Interval for Mean	Lower Bound	.39638
		Upper Bound	.76434
	5% Trimmed Mean	.47101	
	Median	.09915	

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

Descriptives

		Statistic	Std. Error
	Variance	5.697	
	Std. Deviation	2.386875	
	Minimum	-11.526	
	Maximum	15.375	
	Range	26.901	
	Interquartile Range	1.639	
	Skewness	1.484	.096
	Kurtosis	8.585	.192

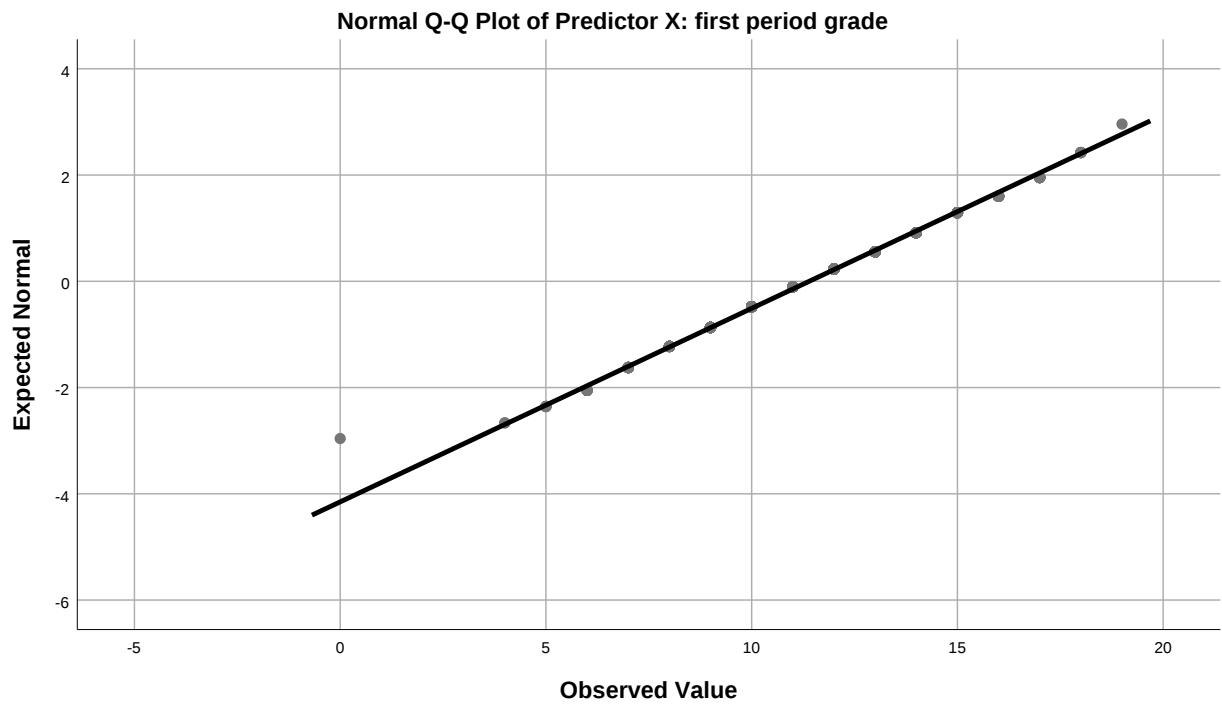
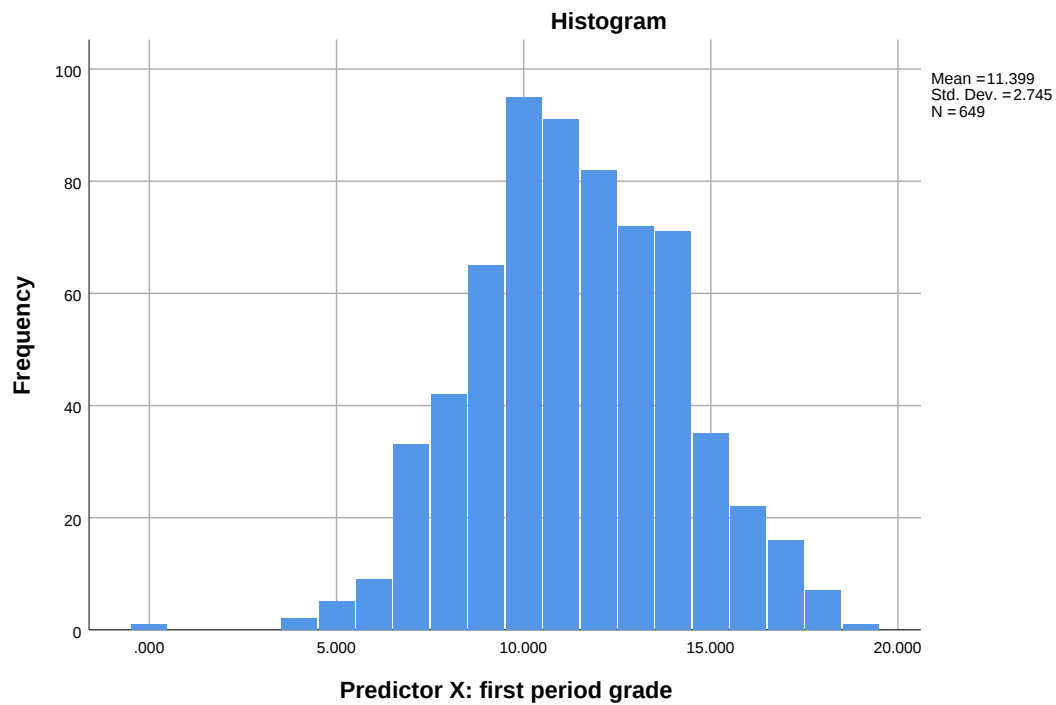
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Predictor X: first period grade	.086	649	.000	.986	649	.000
Mediator M: second period grade	.088	649	.000	.962	649	.000
Outcome Y: final grade	.124	649	.000	.926	649	.000
Moderator W: weekly study time group	.263	649	.000	.825	649	.000
Centered predictor X: G1 - mean(G1)	.086	649	.000	.986	649	.000
Centered mediator M: G2 - mean(G2)	.088	649	.000	.962	649	.000
Centered moderator W: studytime - mean (studytime)	.263	649	.000	.825	649	.000
Interaction term: centered G2 x centered studytime	.243	649	.000	.810	649	.000

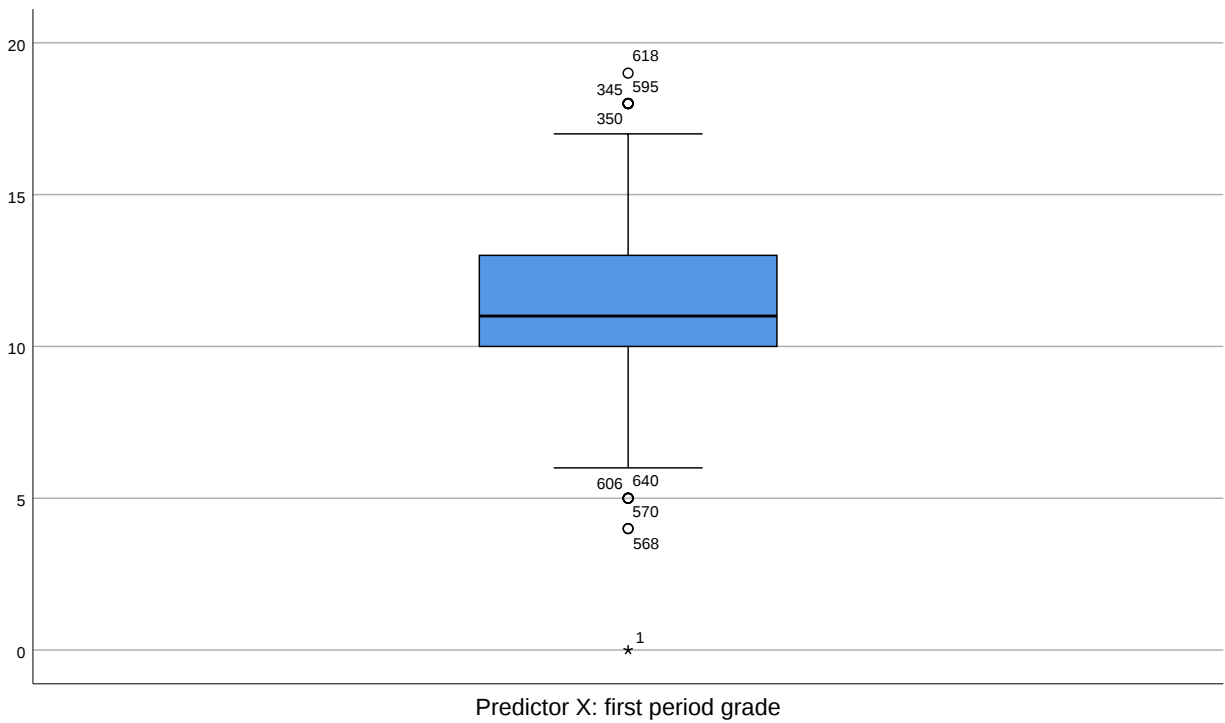
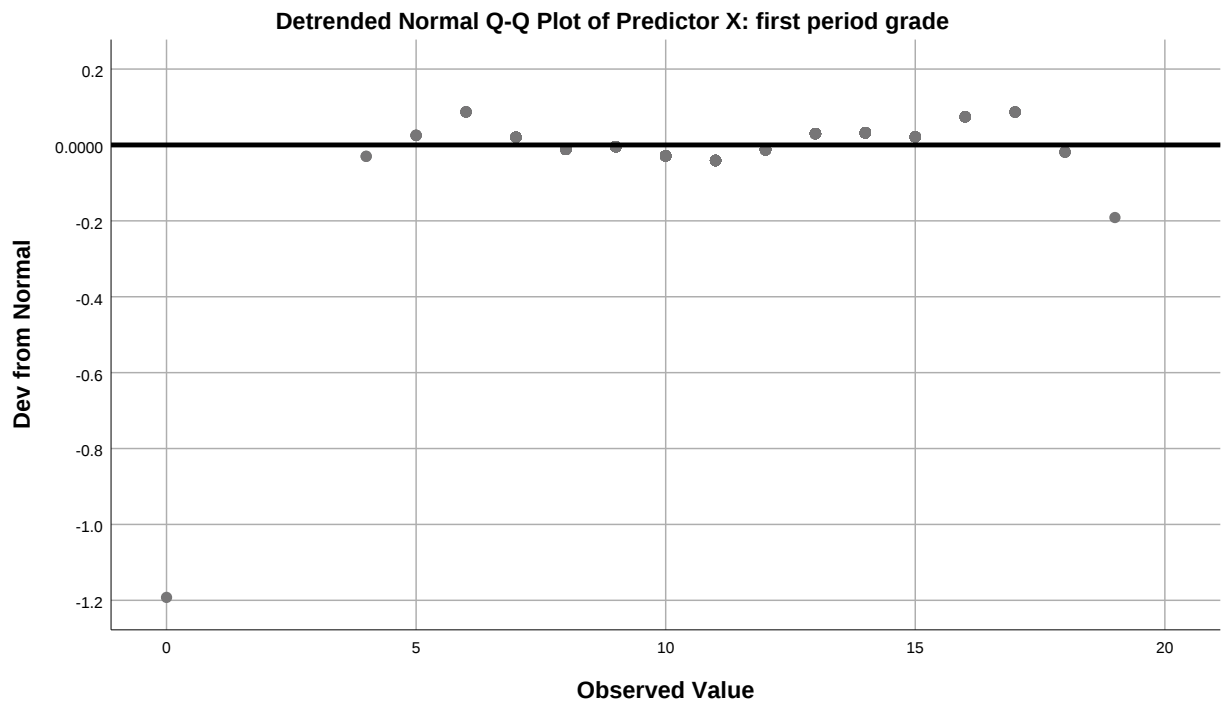
a. Lilliefors Significance Correction

Predictor X: first period grade

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

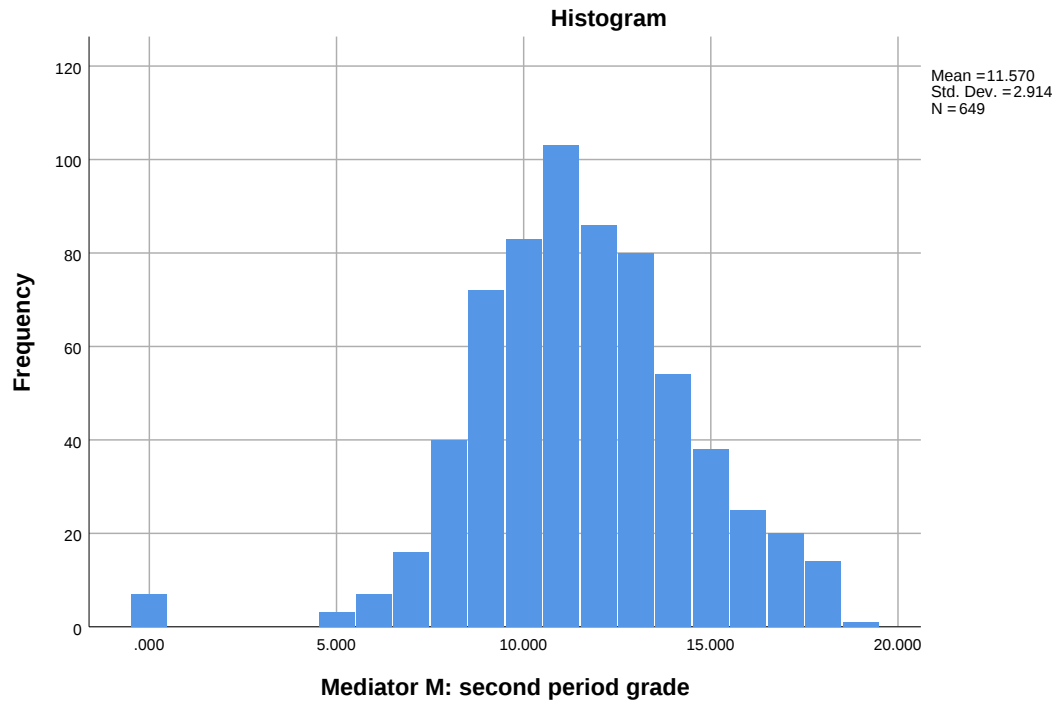


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

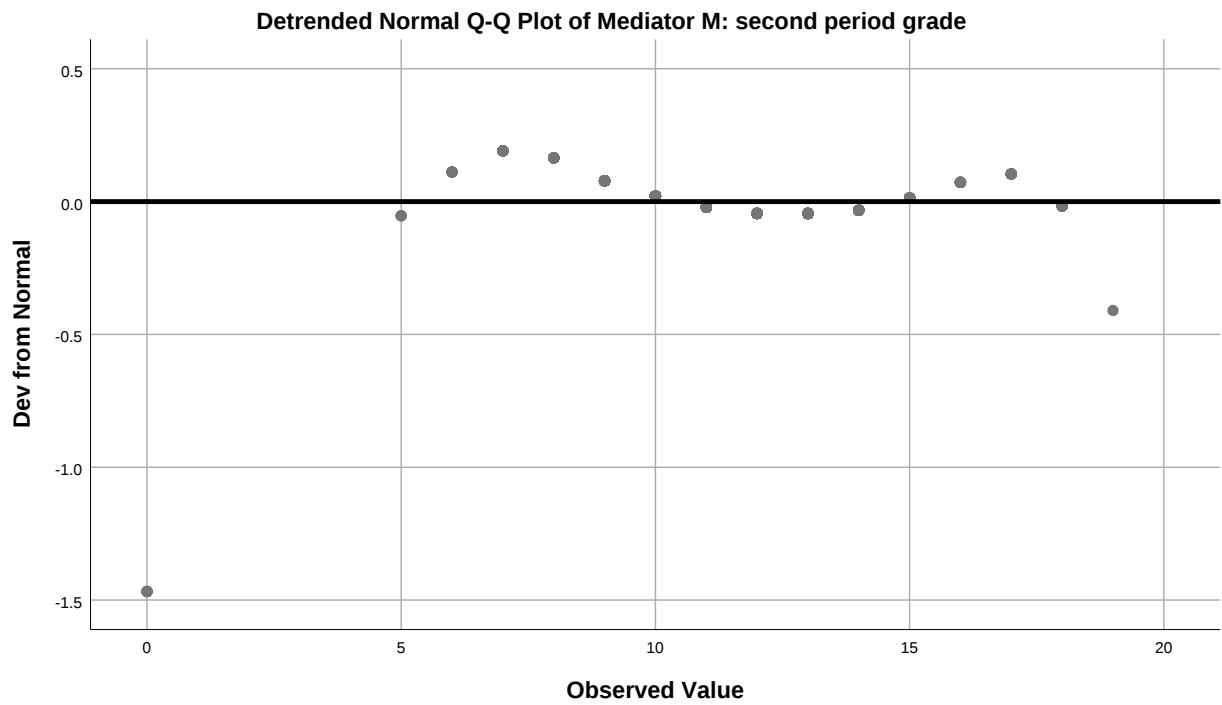
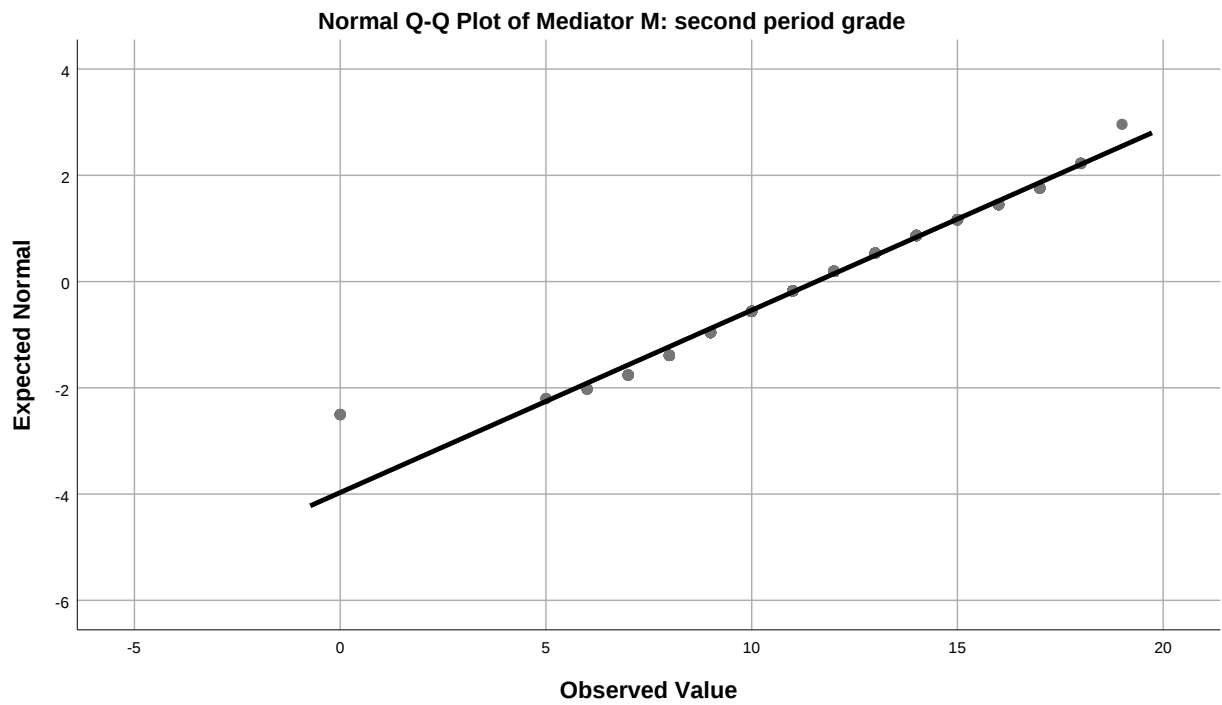


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

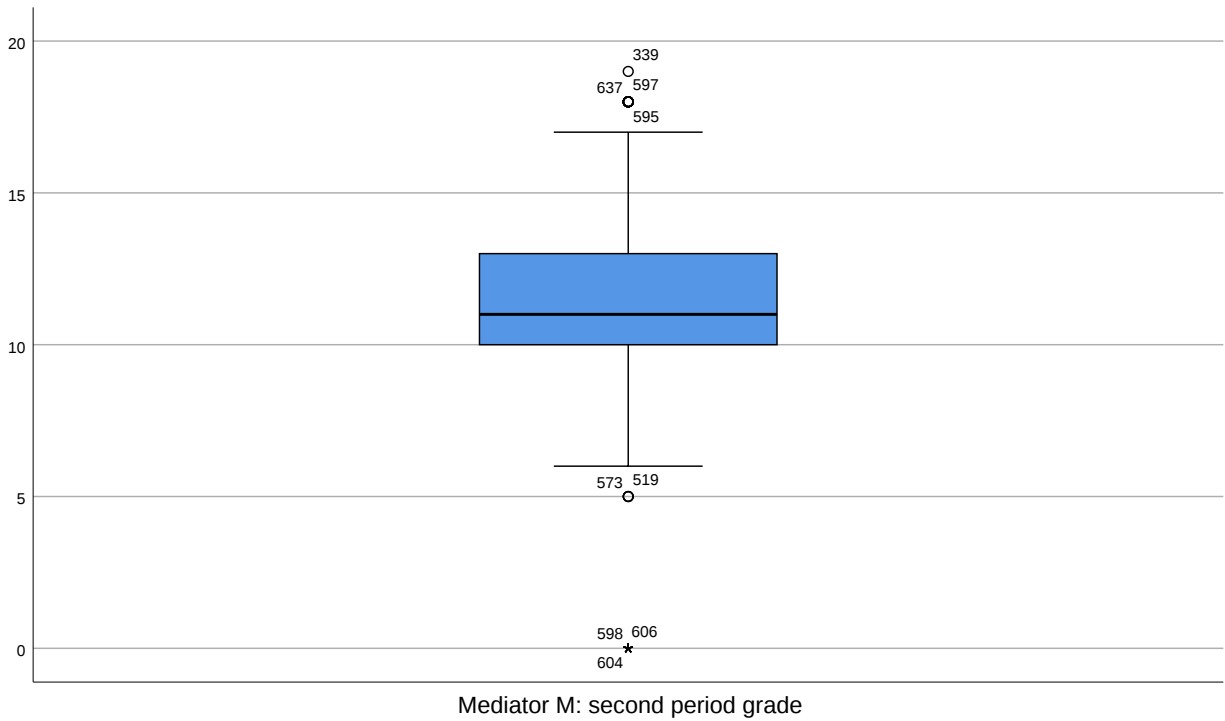
Mediator M: second period grade



Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

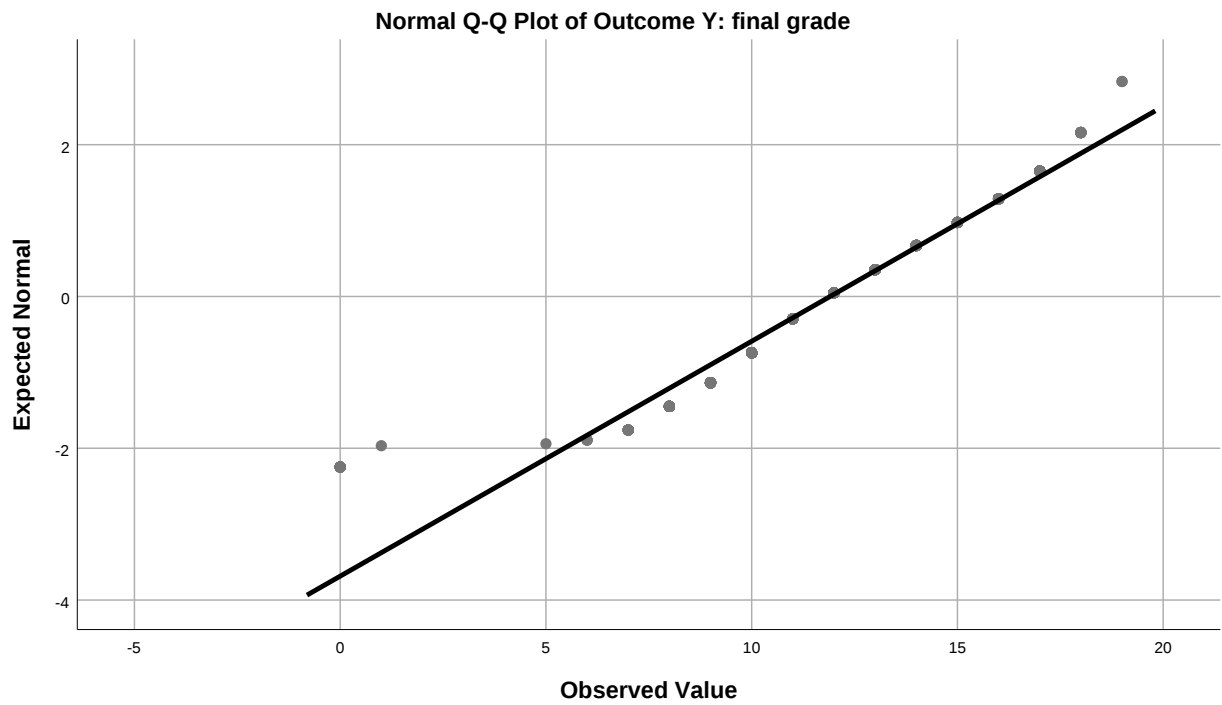
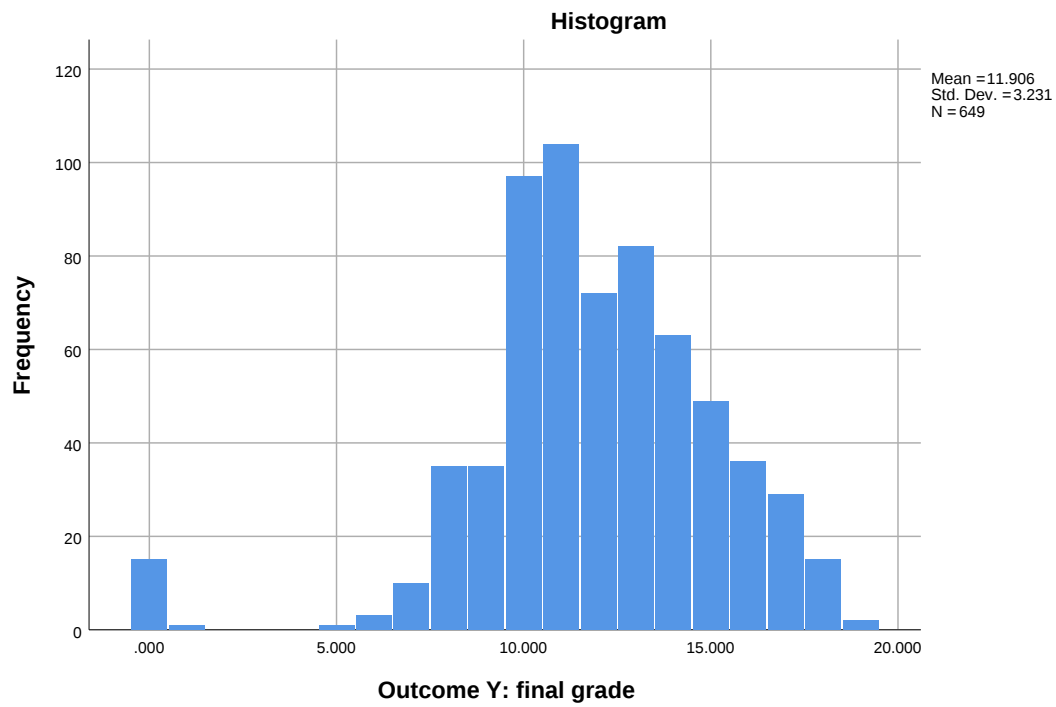


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

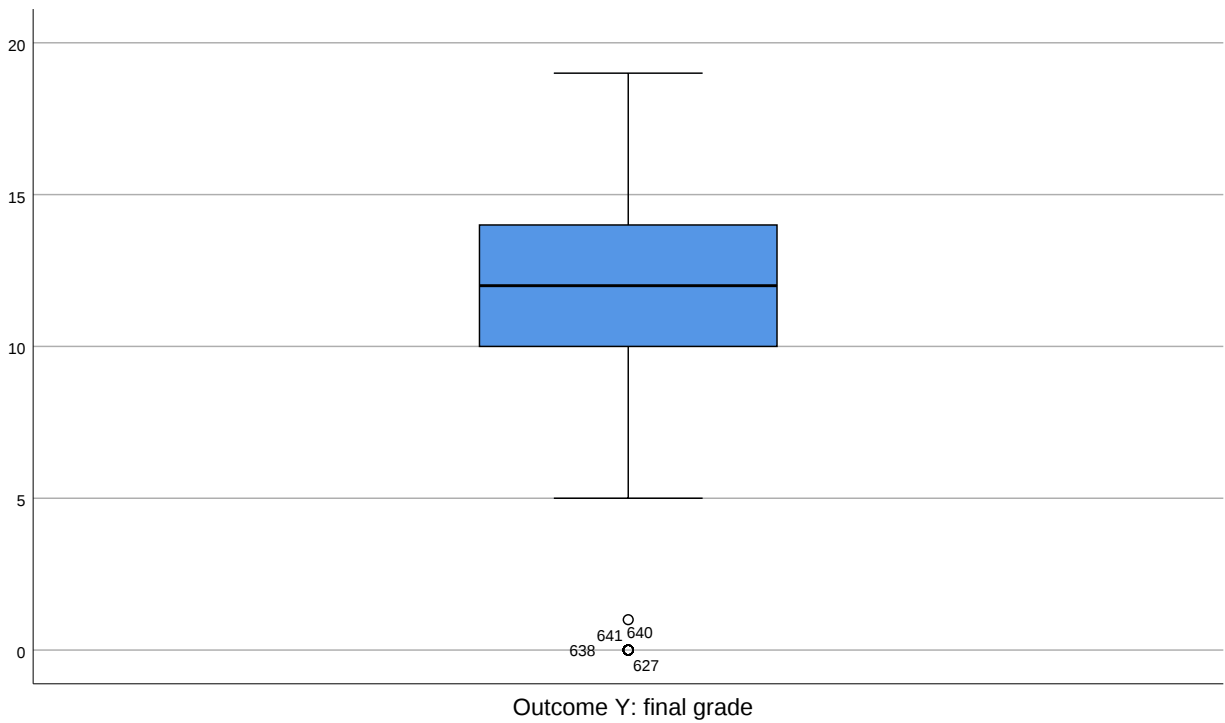
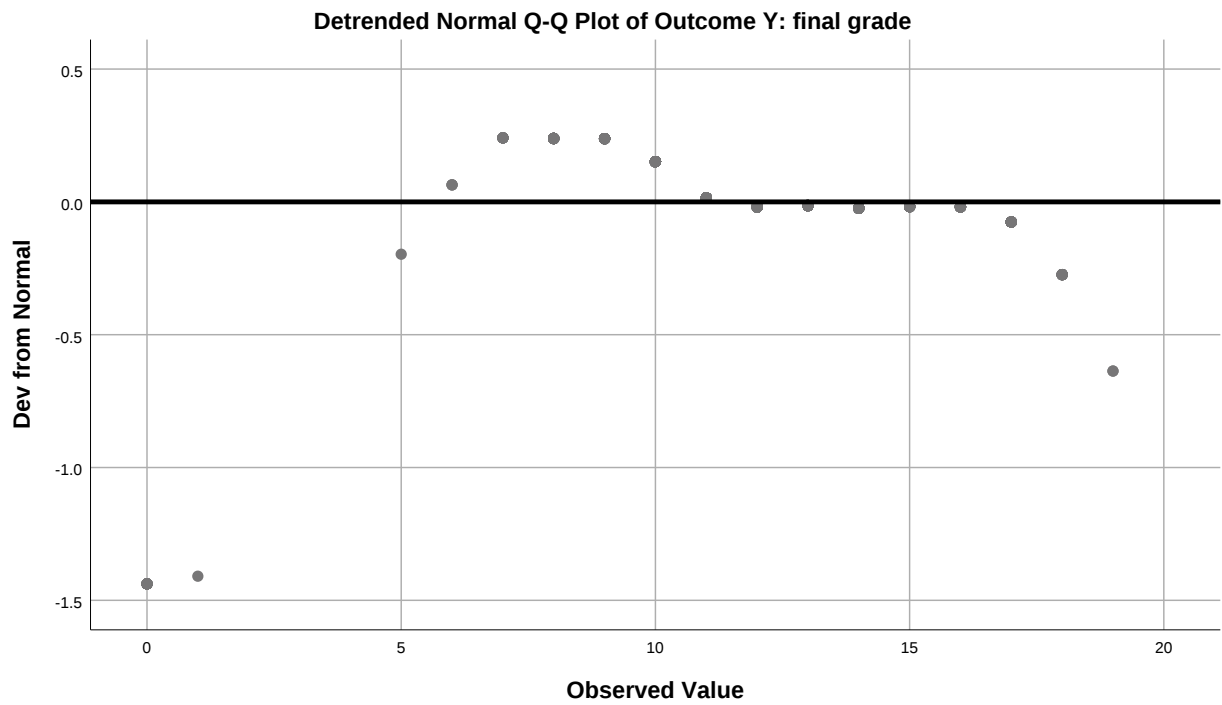


Outcome Y: final grade

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

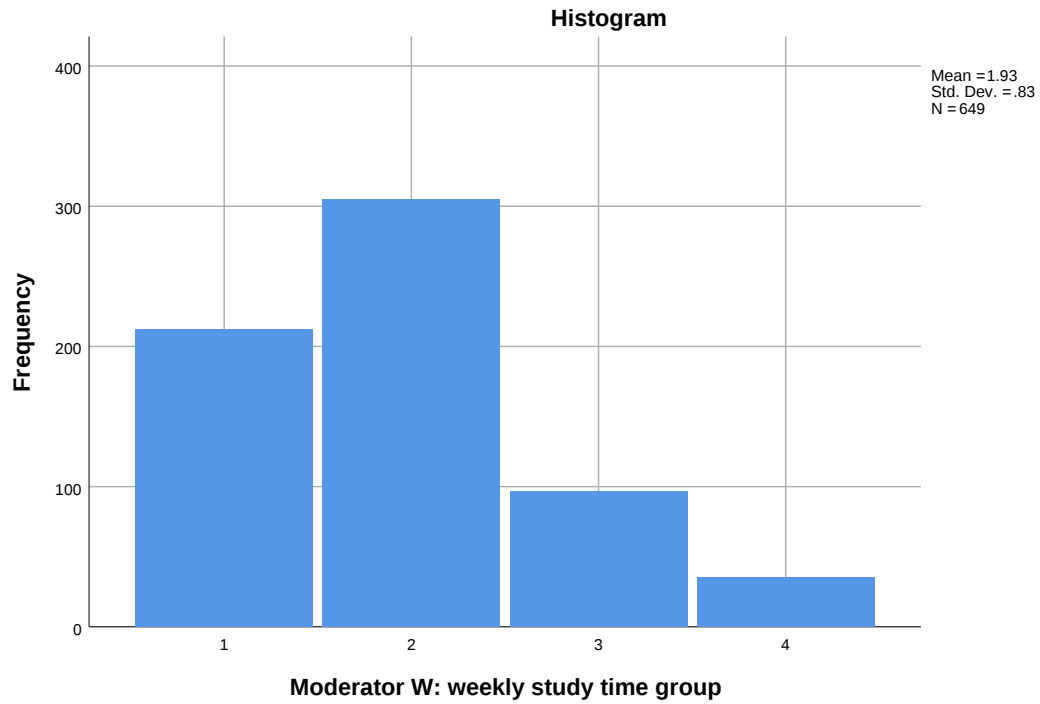


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

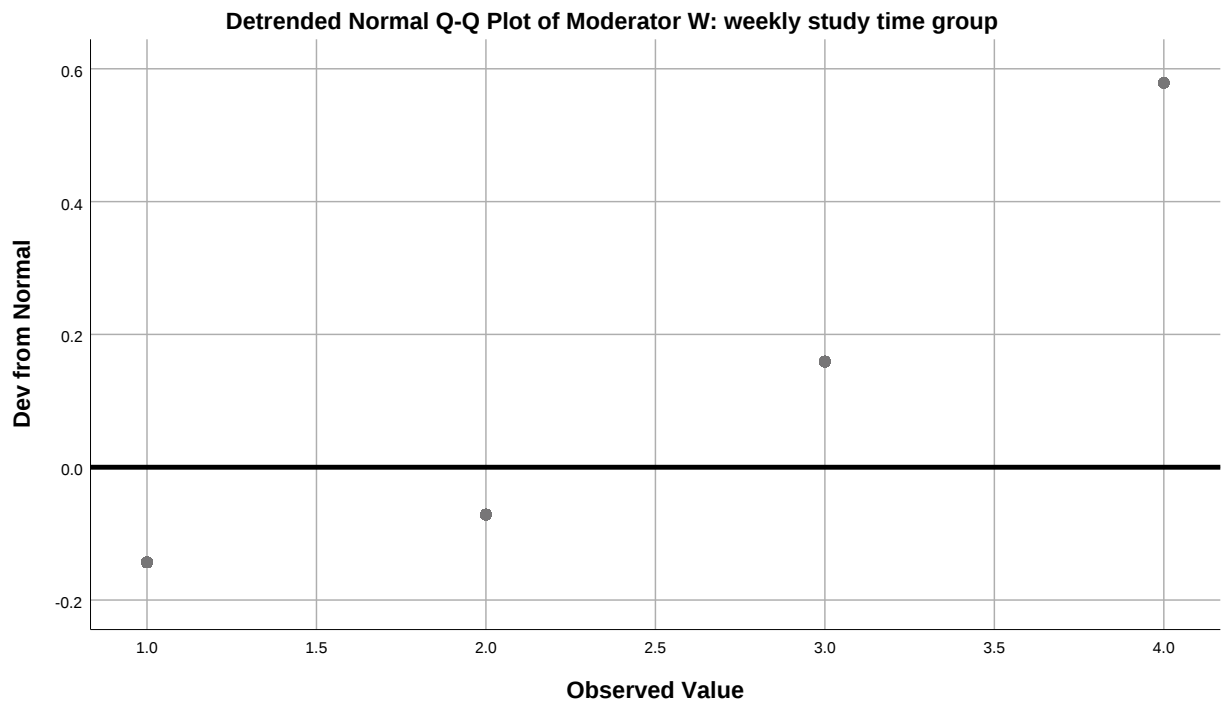
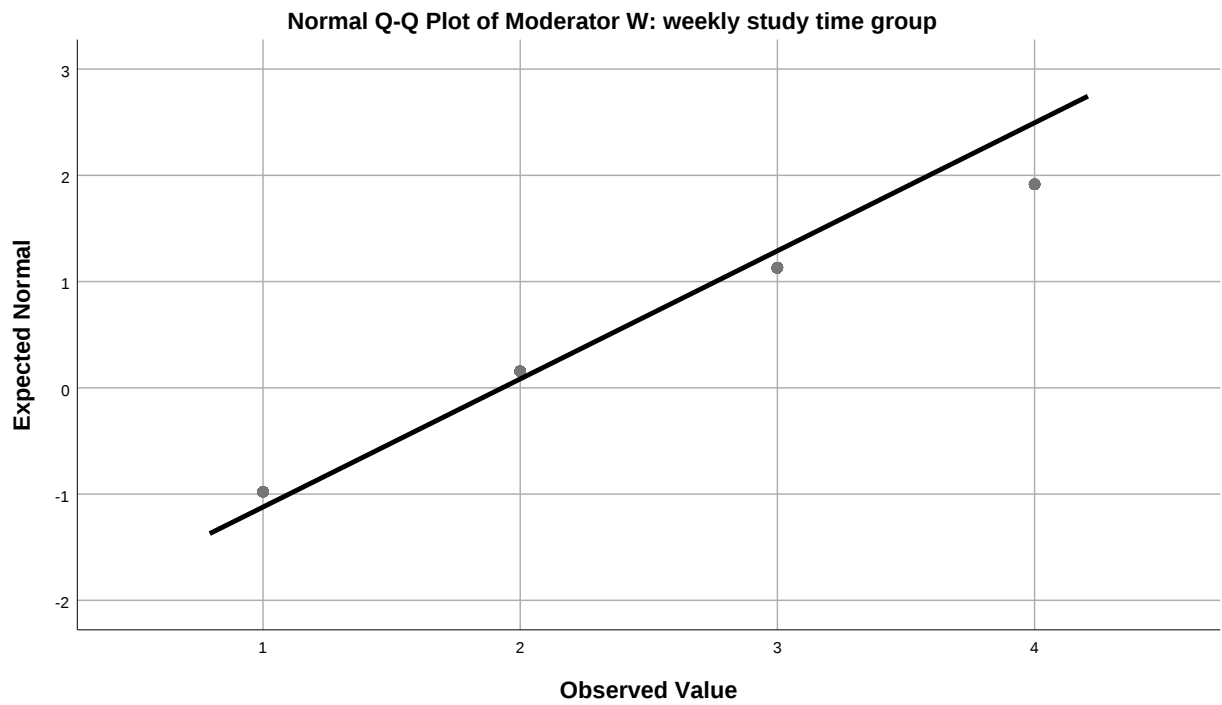


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

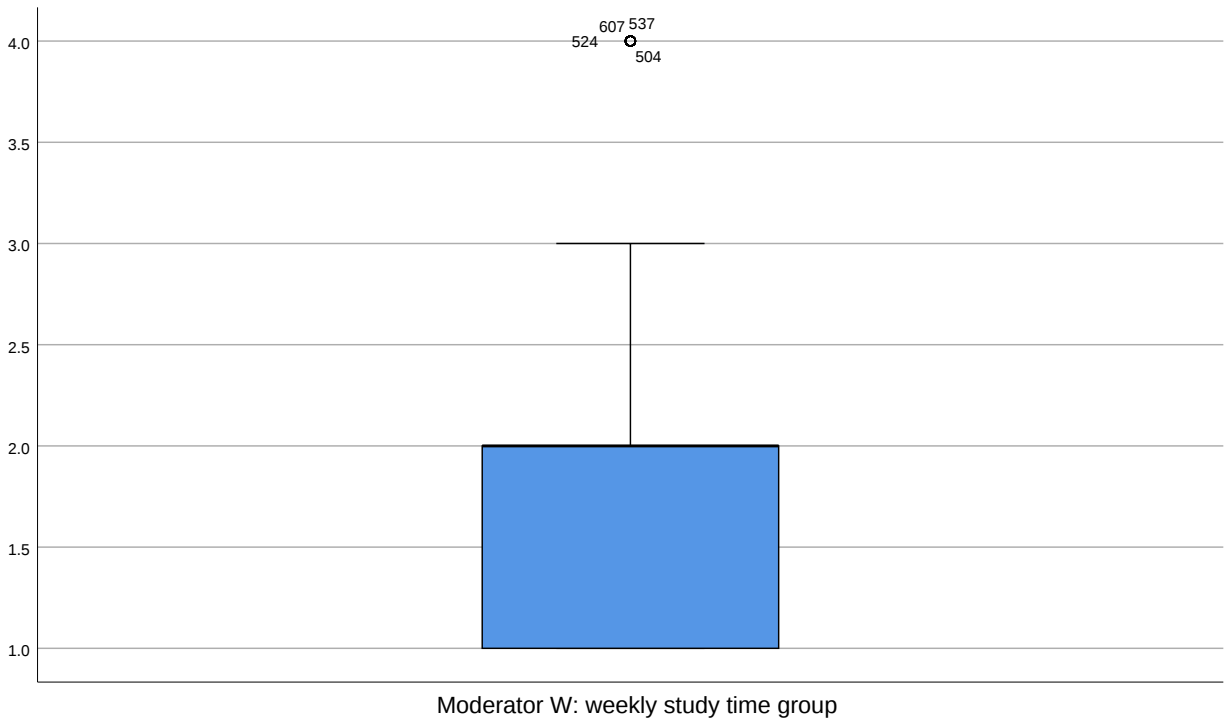
Moderator W: weekly study time group



Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

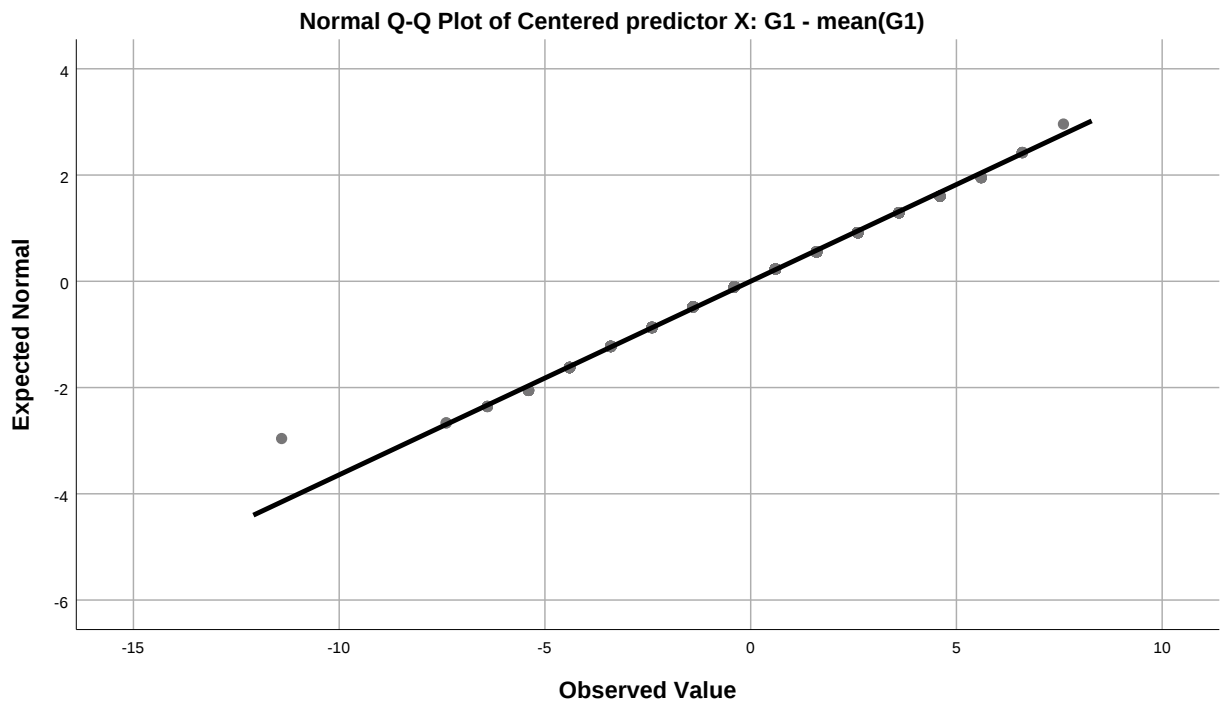
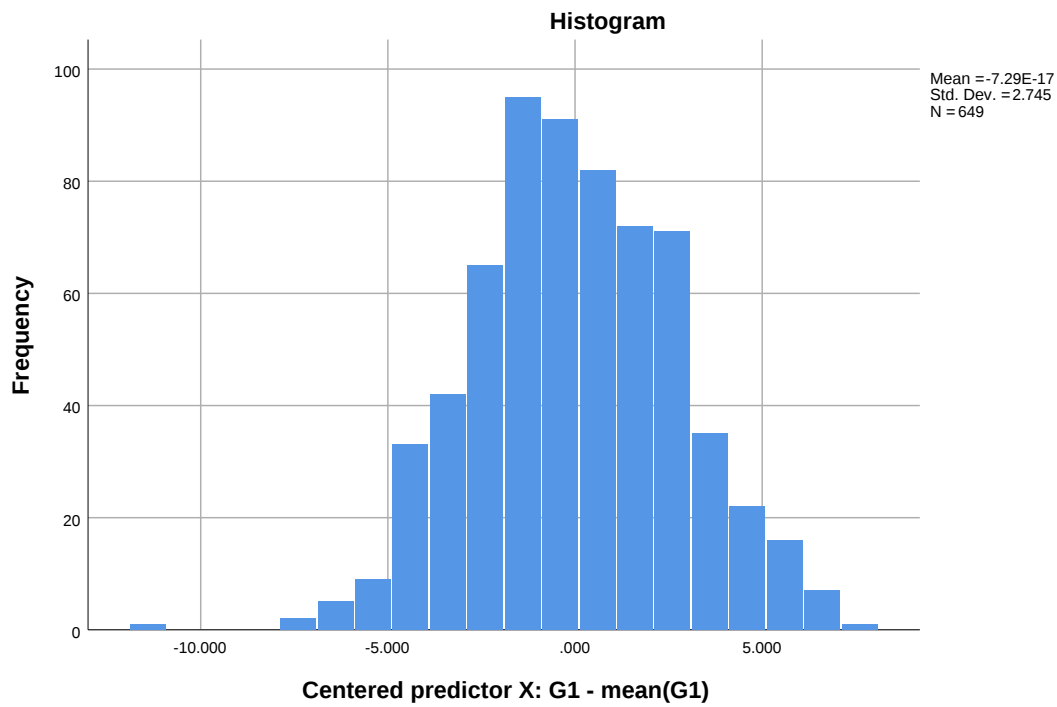


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

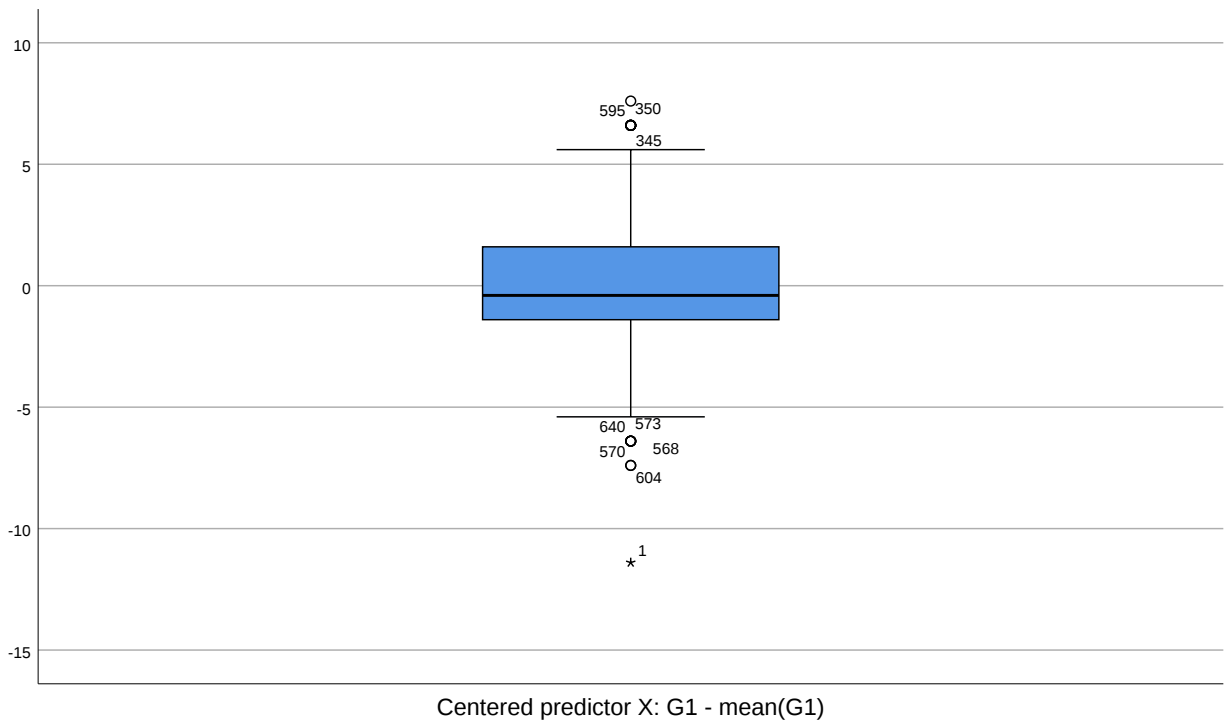
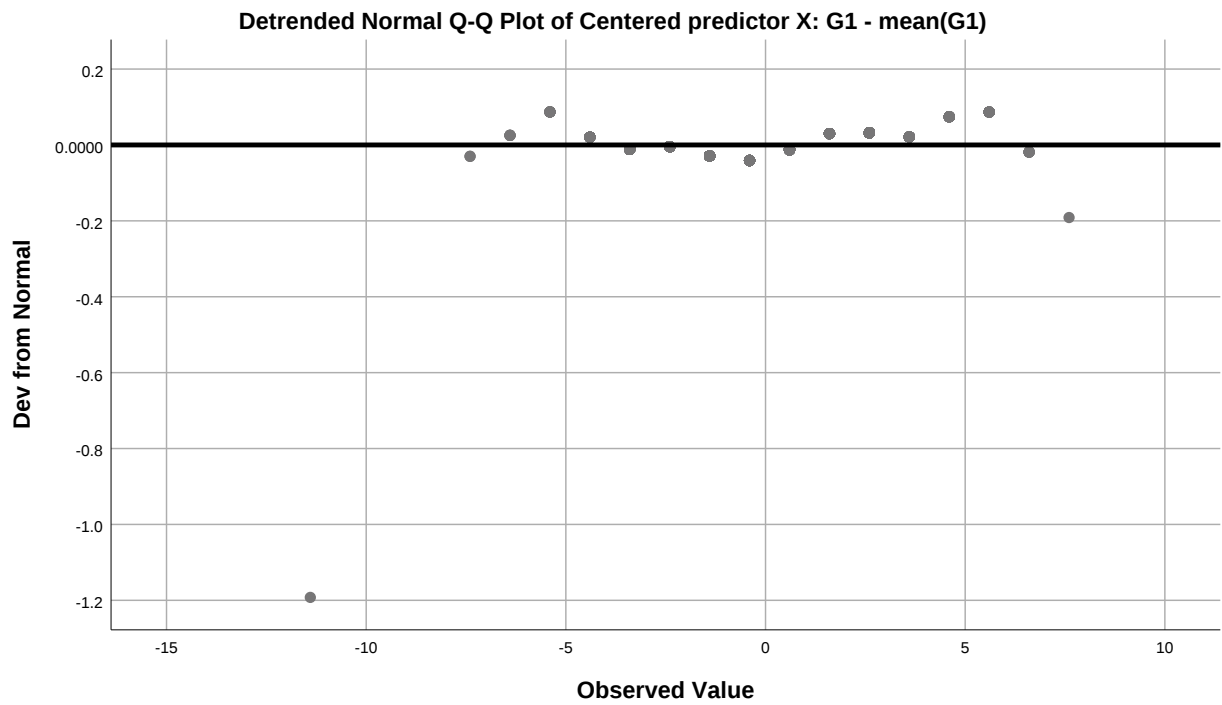


Centered predictor X: $G1 - \text{mean}(G1)$

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

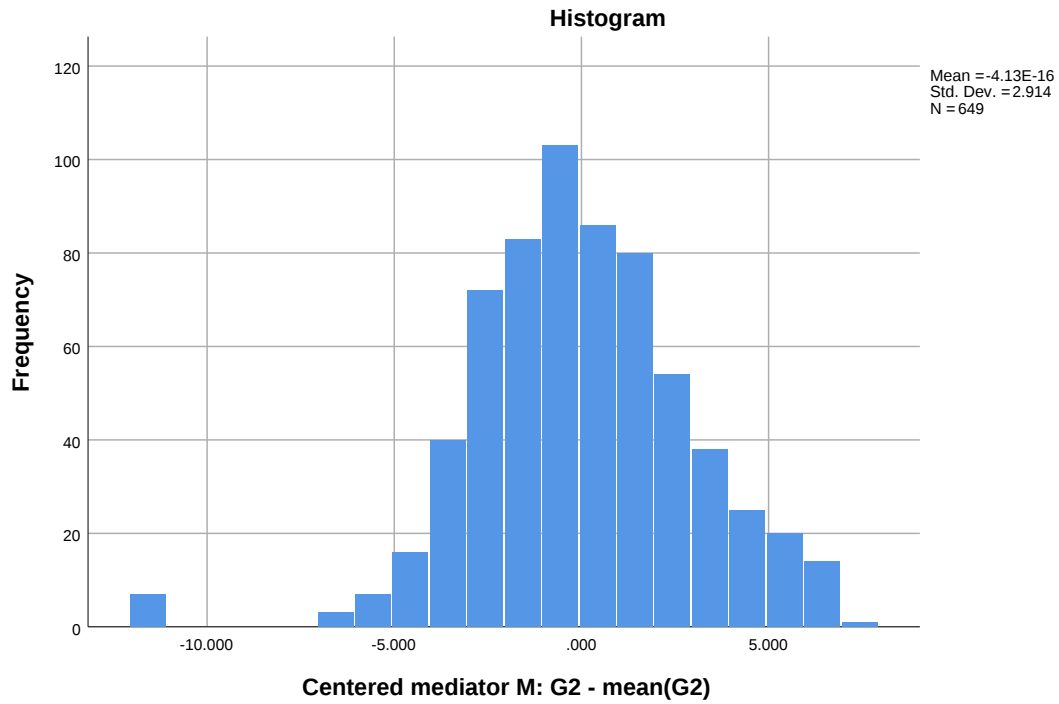


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

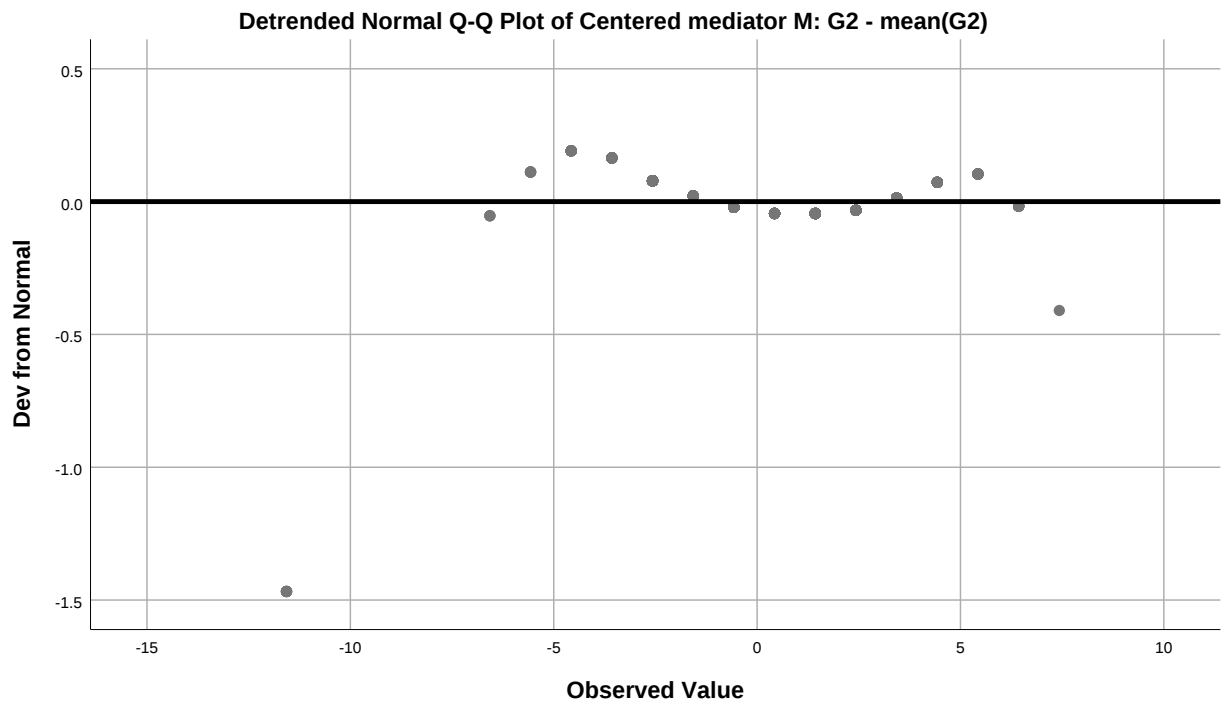
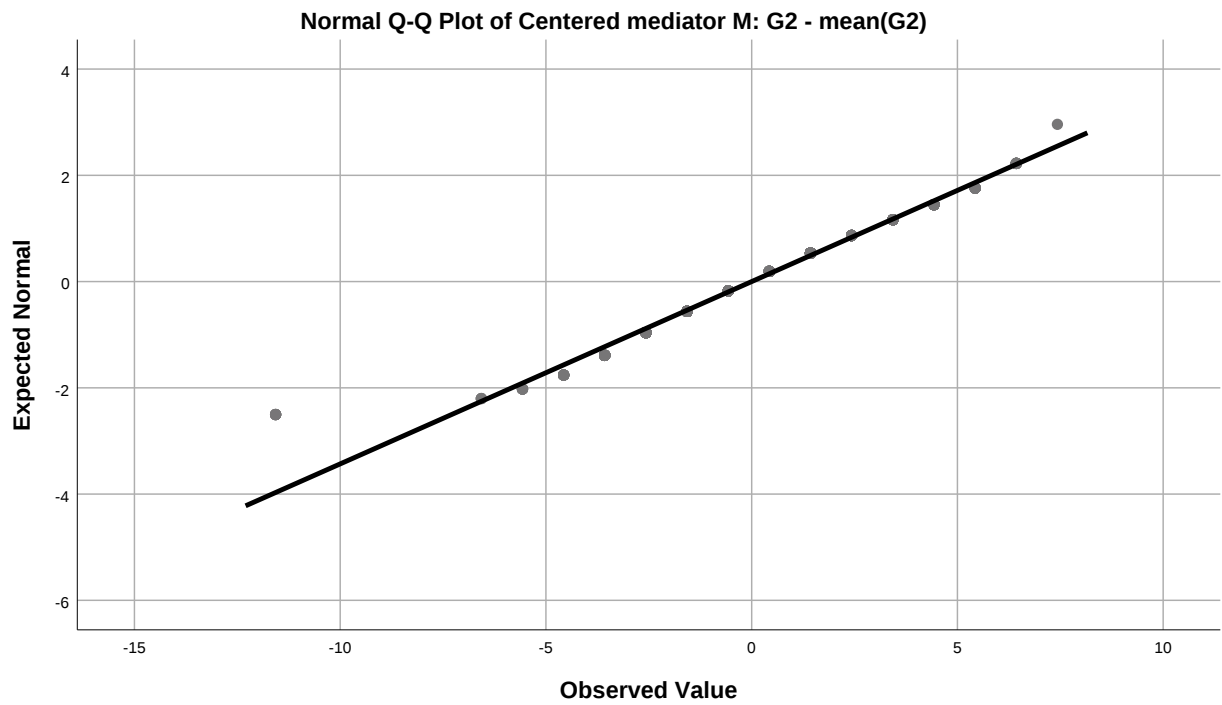


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

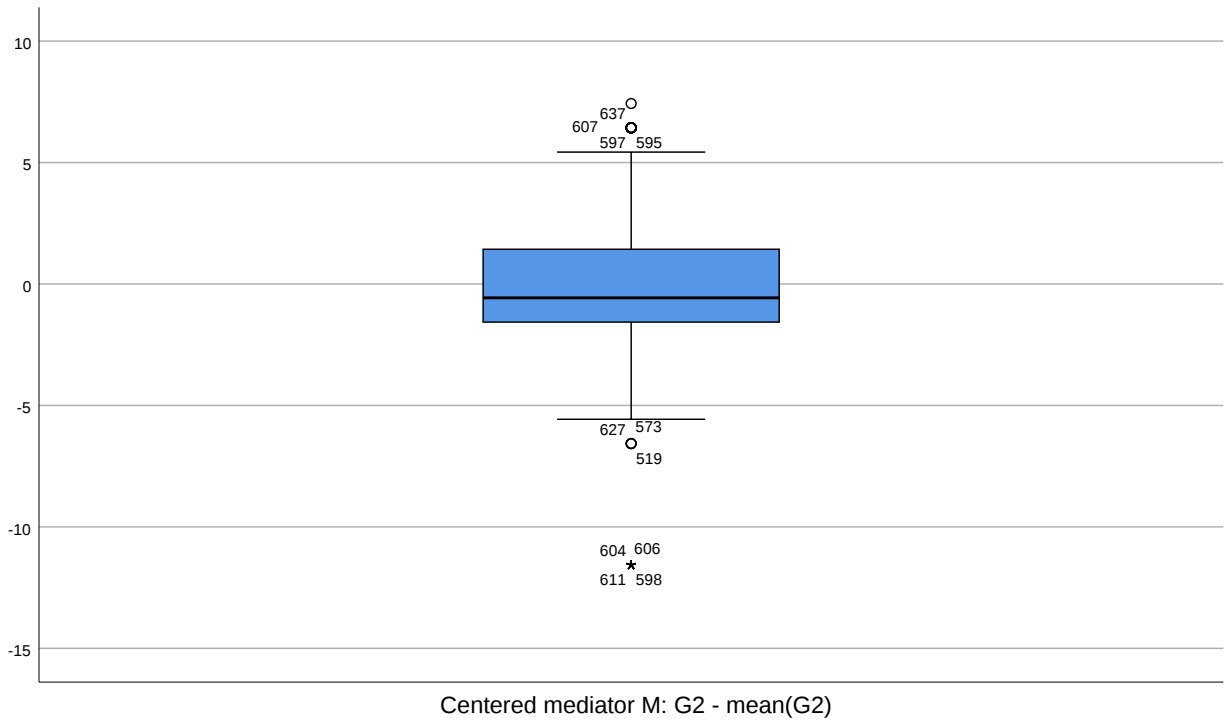
Centered mediator M: G2 - mean(G2)



Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

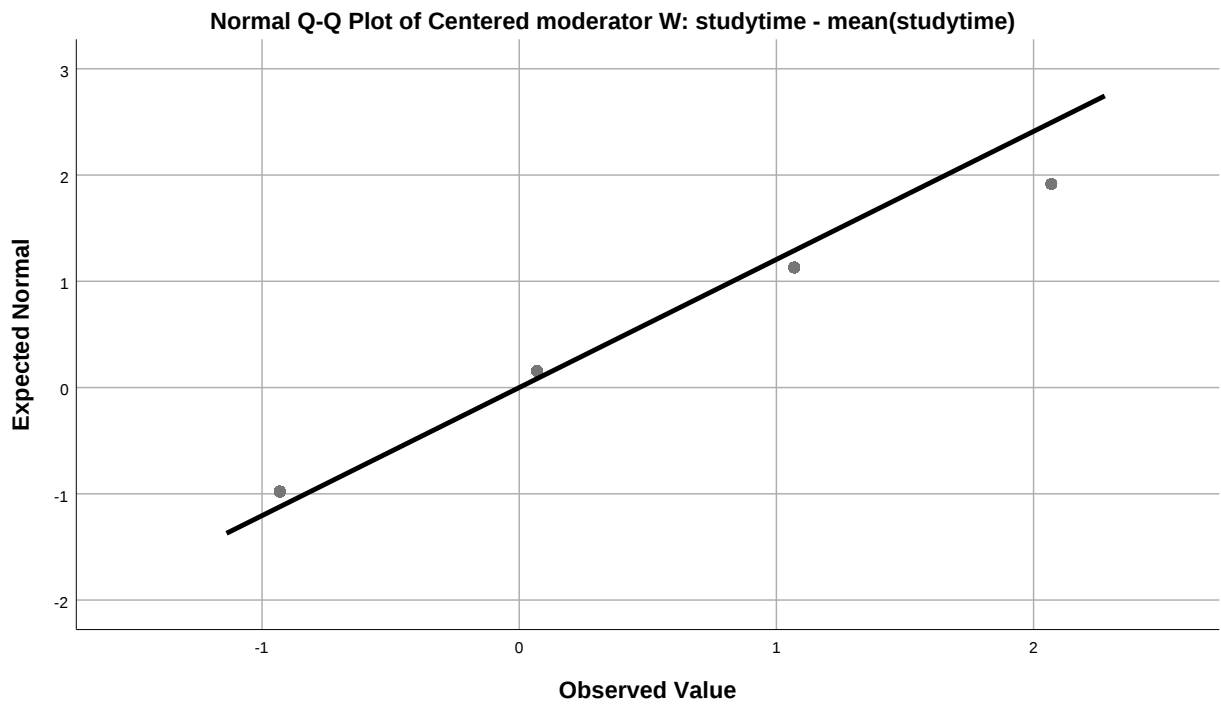
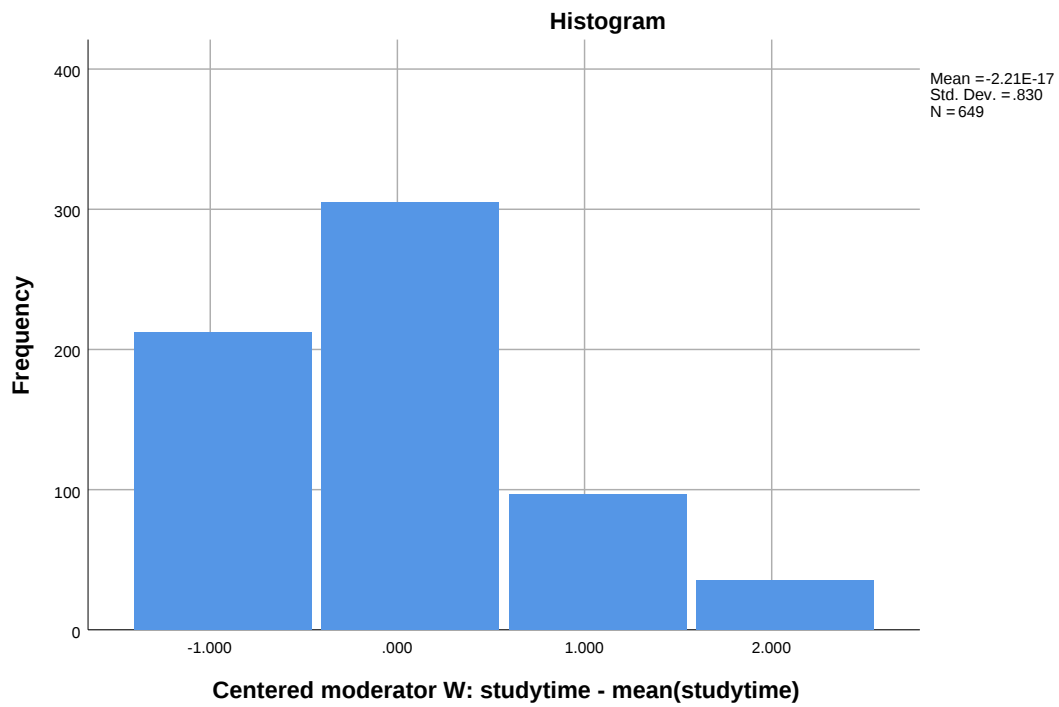


Moderated Mediation Visual Diagnostics Outcome and mediator distribution checks

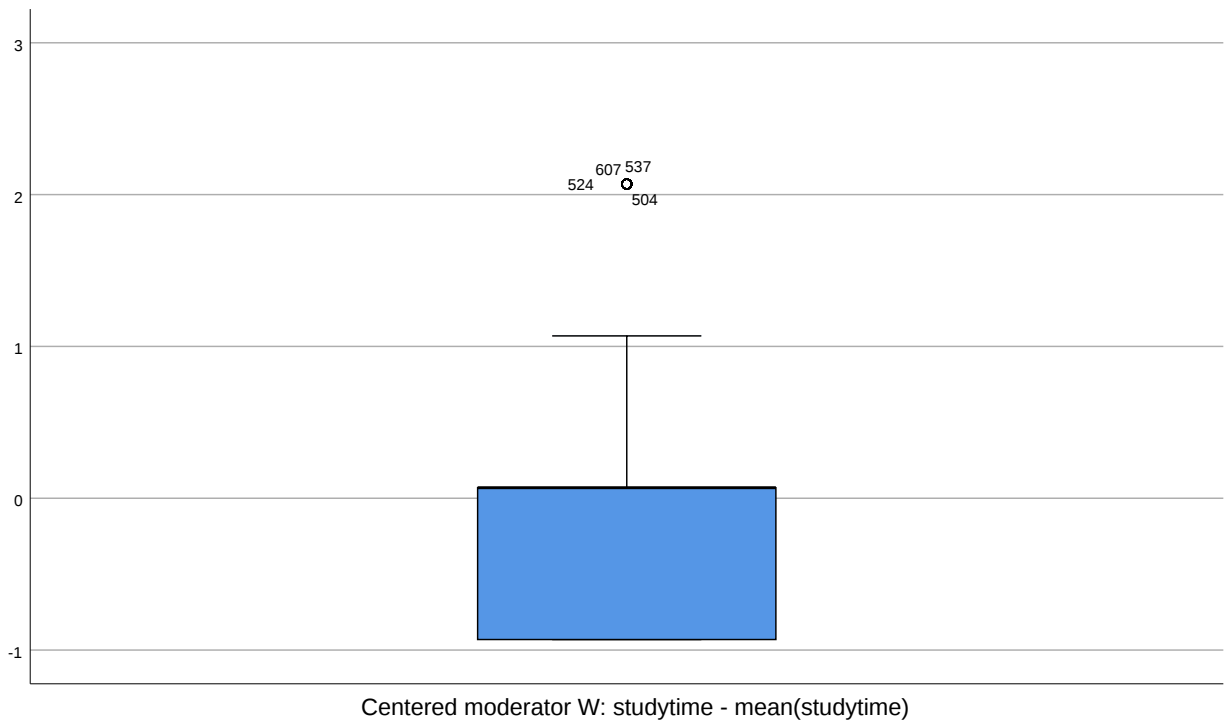
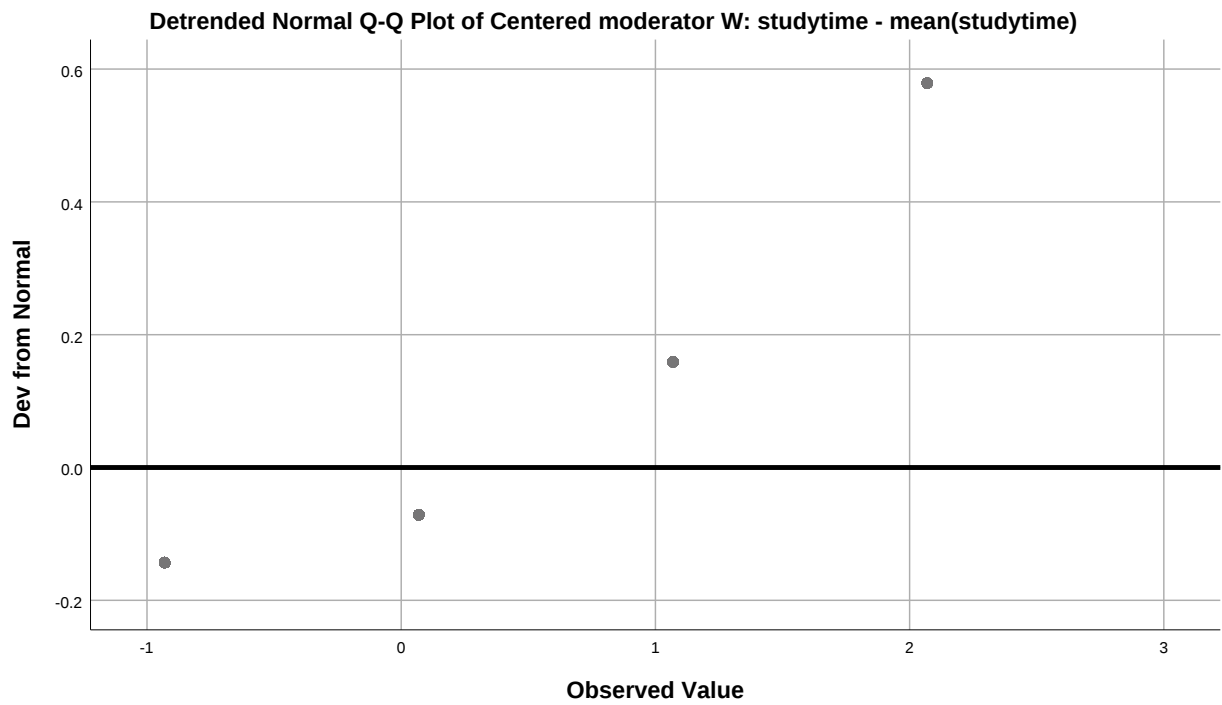


Centered moderator W: $\text{studytime} - \text{mean}(\text{studytime})$

Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

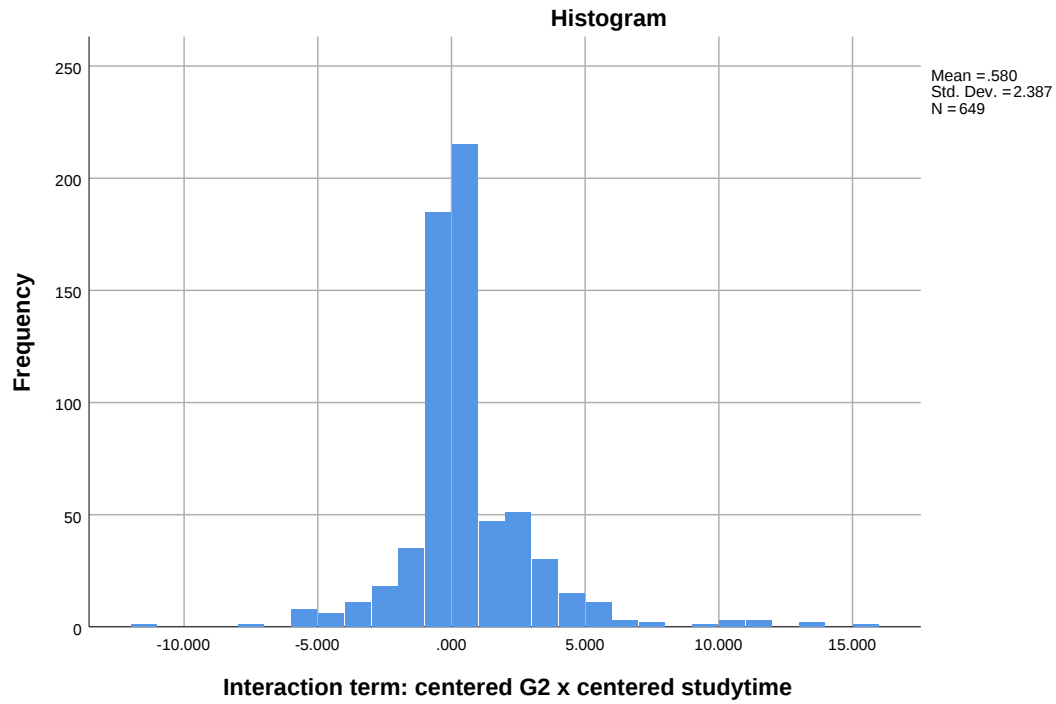


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

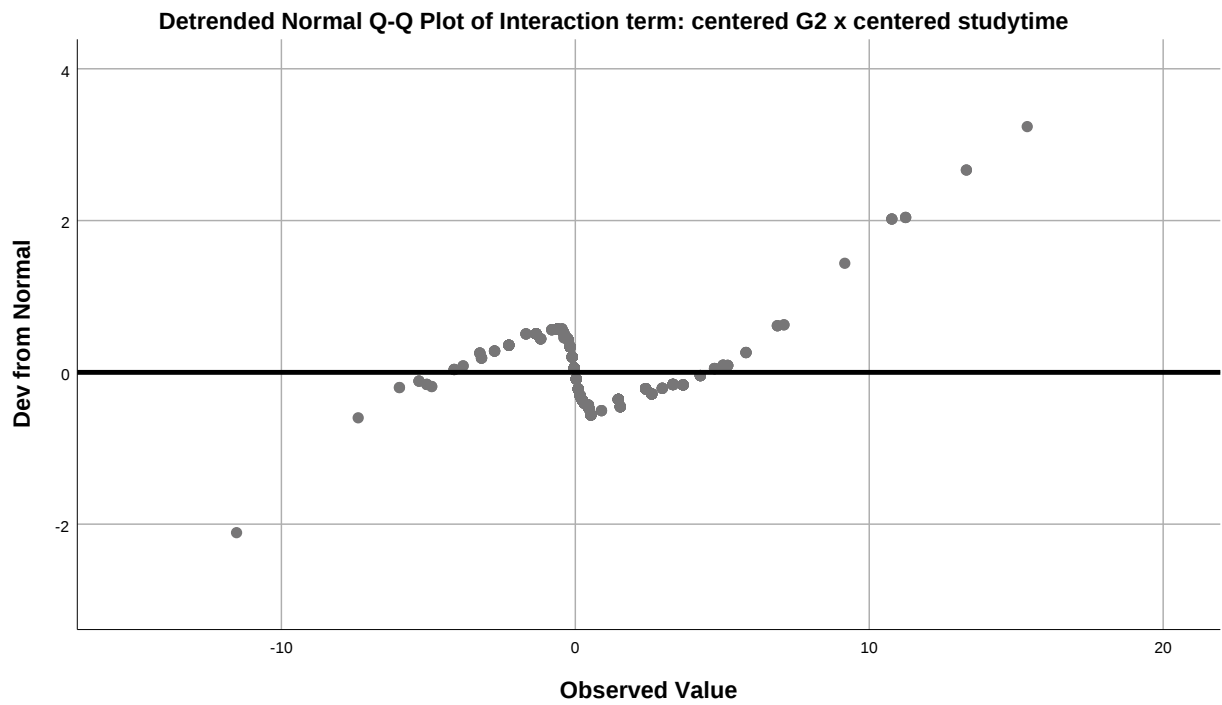
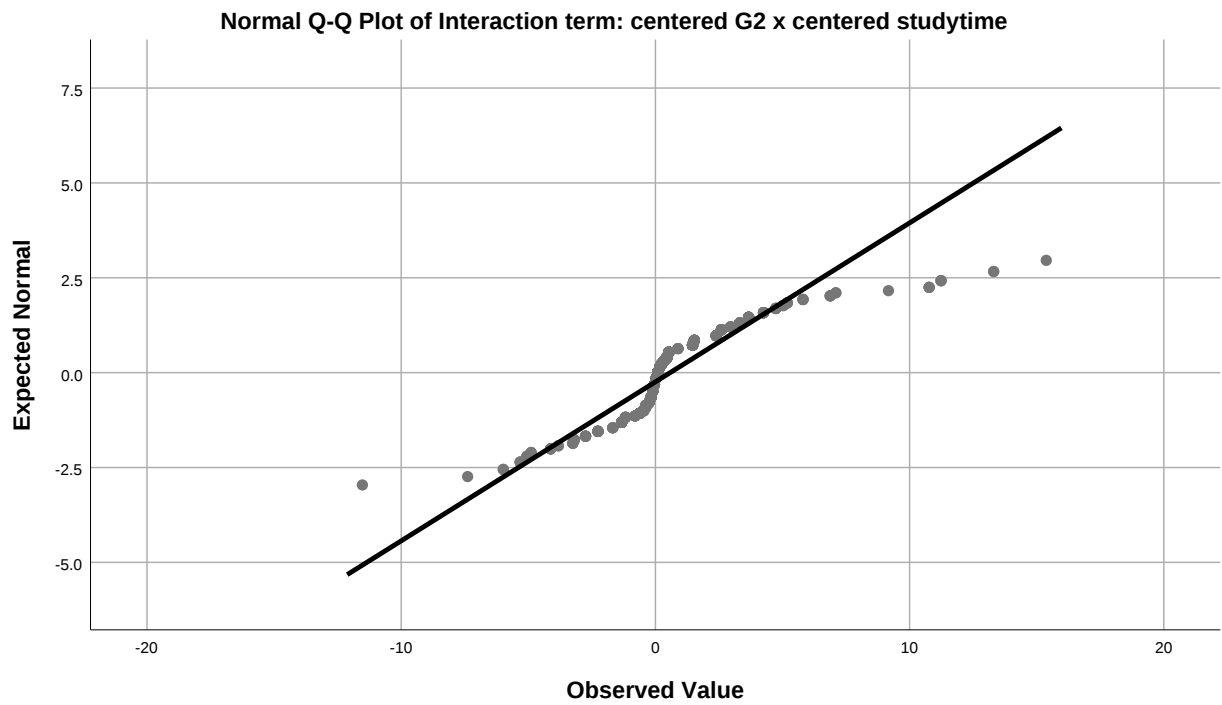


Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks

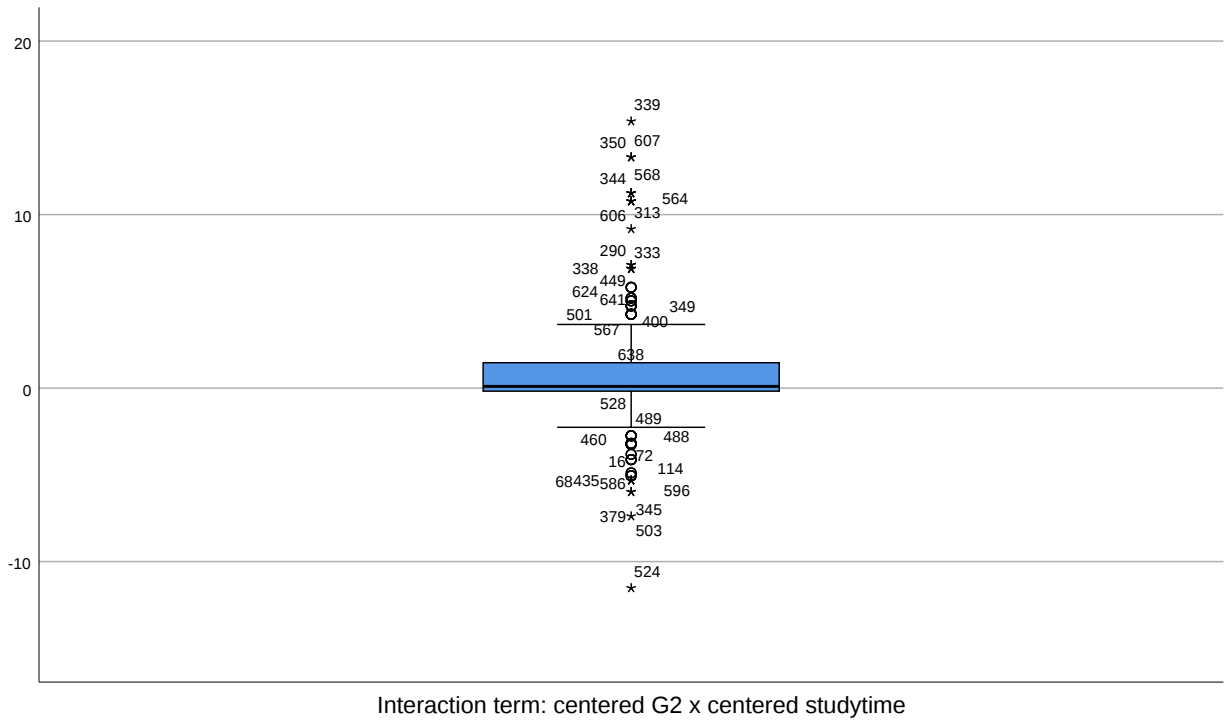
Interaction term: centered G2 x centered studytime



Moderated Mediation Visual Diagnostics
Outcome and mediator distribution checks



Moderated Mediation Visual Diagnostics Outcome and mediator distribution checks



Mediator Path Model

Mediator Path Model
a path: predictor X affects mediator M

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean (G1), failures, Fedu ^b	.	Enter

a. Dependent Variable: Mediator M: second period grade

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.871 ^a	.759	.756	1.439969

a. Predictors: (Constant), health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean(G1), failures, Fedu

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4174.013	8	521.752	251.627	.000 ^b
	Residual	1327.047	640	2.074		
	Total	5501.060	648			

a. Dependent Variable: Mediator M: second period grade

b. Predictors: (Constant), health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean(G1), failures, Fedu

Mediator Path Model
a path: predictor X affects mediator M

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.957	.873		10.258	.000
	Centered predictor X: G1 - mean(G1)	.883	.023	.832	38.130	.000
	failures	-.379	.108	-.077	-3.510	.000
	absences	-.003	.012	-.005	-.251	.802
	age	.165	.050	.069	3.320	.001
	Medu	.058	.067	.023	.867	.386
	Fedu	.065	.068	.024	.951	.342
	traveltime	-.046	.079	-.012	-.587	.557
	health	-.076	.039	-.038	-1.936	.053

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	7.242	10.672
	Centered predictor X: G1 - mean(G1)	.837	.928
	failures	-.591	-.167
	absences	-.028	.021
	age	.067	.262
	Medu	-.074	.190
	Fedu	-.069	.199
	traveltime	-.201	.109
	health	-.153	.001

a. Dependent Variable: Mediator M: second period grade

Mediator Path Model
a path: predictor X affects mediator M

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Centered predictor X: G1 - mean(G1)	failures
1	1	5.992	1.000	.00	.00	.00
	2	1.352	2.105	.00	.33	.18
	3	.582	3.208	.00	.25	.55
	4	.540	3.331	.00	.33	.17
	5	.258	4.817	.00	.08	.02
	6	.151	6.307	.00	.01	.00
	7	.068	9.356	.01	.00	.01
	8	.054	10.504	.01	.00	.00
	9	.002	51.630	.98	.00	.06

Collinearity Diagnostics^a

Model	Dimension	Variance Proportions					
		absences	age	Medu	Fedu	traveltime	health
1	1	.01	.00	.00	.00	.00	.00
	2	.01	.00	.00	.00	.00	.00
	3	.35	.00	.00	.00	.00	.00
	4	.60	.00	.00	.00	.01	.01
	5	.00	.00	.08	.10	.31	.00
	6	.00	.00	.03	.04	.24	.63
	7	.00	.01	.23	.65	.16	.15
	8	.02	.02	.65	.20	.26	.20
	9	.01	.97	.00	.01	.01	.01

a. Dependent Variable: Mediator M: second period grade

Total Effect Model

>Warning # 2004. Command name: SUBTITLE

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

Total Effect Model
c path: predictor X affects outcome Y before mediator is entered

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean(G1), failures, Fedu ^b	.	Enter

a. Dependent Variable: Outcome Y: final grade

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.836 ^a	.698	.695	1.785519

a. Predictors: (Constant), health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean(G1), failures, Fedu

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4722.896	8	590.362	185.178	.000 ^b
	Residual	2040.371	640	3.188		
	Total	6763.267	648			

a. Dependent Variable: Outcome Y: final grade

b. Predictors: (Constant), health, Medu, absences, age, traveltime, Centered predictor X: G1 - mean(G1), failures, Fedu

Total Effect Model
c path: predictor X affects outcome Y before mediator is entered

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.206	1.083		8.503	.000
	Centered predictor X: G1 - mean(G1)	.931	.029	.791	32.441	.000
	failures	-.579	.134	-.106	-4.320	.000
	absences	.018	.015	.026	1.168	.243
	age	.172	.061	.065	2.805	.005
	Medu	.019	.083	.007	.228	.820
	Fedu	.085	.084	.029	1.008	.314
	traveltime	.036	.098	.008	.367	.713
	health	-.120	.049	-.054	-2.462	.014

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	7.080	11.332
	Centered predictor X: G1 - mean(G1)	.875	.987
	failures	-.842	-.316
	absences	-.012	.048
	age	.052	.293
	Medu	-.145	.183
	Fedu	-.081	.251
	traveltime	-.156	.228
	health	-.216	-.024

a. Dependent Variable: Outcome Y: final grade

Total Effect Model
c path: predictor X affects outcome Y before mediator is ent

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Centered predictor X: G1 - mean(G1)	failures
1	1	5.992	1.000	.00	.00	.00
	2	1.352	2.105	.00	.33	.18
	3	.582	3.208	.00	.25	.55
	4	.540	3.331	.00	.33	.17
	5	.258	4.817	.00	.08	.02
	6	.151	6.307	.00	.01	.00
	7	.068	9.356	.01	.00	.01
	8	.054	10.504	.01	.00	.00
	9	.002	51.630	.98	.00	.06

Collinearity Diagnostics^a

Model	Dimension	Variance Proportions					
		absences	age	Medu	Fedu	traveltime	health
1	1	.01	.00	.00	.00	.00	.00
	2	.01	.00	.00	.00	.00	.00
	3	.35	.00	.00	.00	.00	.00
	4	.60	.00	.00	.00	.01	.01
	5	.00	.00	.08	.10	.31	.00
	6	.00	.00	.03	.04	.24	.63
	7	.00	.01	.23	.65	.16	.15
	8	.02	.02	.65	.20	.26	.20
	9	.01	.97	.00	.01	.01	.01

a. Dependent Variable: Outcome Y: final grade

Moderated Mediation Outcome Model

>Warning # 2004. Command name: SUBTITLE

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

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	health, Medu, absences, Interaction term: centered G2 x centered studytime, Centered moderator W: studytime - mean (studytime), age, traveltime, Centered mediator M: G2 - mean (G2), failures, Fedu, Centered predictor X: G1 - mean (G1) ^b	.	Enter

a. Dependent Variable: Outcome Y: final grade

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923 ^a	.853	.850	1.250832

a. Predictors: (Constant), health, Medu, absences, Interaction term: centered G2 x centered studytime, Centered moderator W: studytime - mean(studytime), age, traveltime, Centered mediator M: G2 - mean (G2), failures, Fedu, Centered predictor X: G1 - mean(G1)

b. Dependent Variable: Outcome Y: final grade

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5766.629	11	524.239	335.067	.000 ^b
	Residual	996.638	637	1.565		
	Total	6763.267	648			

a. Dependent Variable: Outcome Y: final grade

b. Predictors: (Constant), health, Medu, absences, Interaction term: centered G2 x centered studytime, Centered moderator W: studytime - mean(studytime), age, traveltime, Centered mediator M: G2 - mean(G2), failures, Fedu, Centered predictor X: G1 - mean(G1)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.480	.766		14.993	.000
	Centered predictor X: G1 - mean(G1)	.150	.037	.128	4.107	.000
	Centered mediator M: G2 - mean(G2)	.881	.034	.794	25.649	.000
	Centered moderator W: studytime - mean (studytime)	.106	.062	.027	1.697	.090
	Interaction term: centered G2 x centered studytime	-.044	.021	-.032	-2.085	.037
	failures	-.223	.095	-.041	-2.348	.019
	absences	.021	.011	.030	1.932	.054
	age	.032	.044	.012	.722	.471
	Medu	-.033	.058	-.012	-.566	.572
	Fedu	.018	.060	.006	.306	.759
	traveltime	.076	.069	.018	1.106	.269
	health	-.051	.034	-.023	-1.500	.134

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	9.977	12.984
	Centered predictor X: G1 - mean(G1)	.078	.222
	Centered mediator M: G2 - mean(G2)	.813	.948
	Centered moderator W: studytime - mean (studytime)	-.017	.228
	Interaction term: centered G2 x centered studytime	-.085	-.003
	failures	-.410	-.037
	absences	.000	.043
	age	-.054	.117
	Medu	-.148	.082
	Fedu	-.099	.135
	traveltime	-.059	.211
	health	-.119	.016

a. Dependent Variable: Outcome Y: final grade

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions	
					Centered predictor X: G1 - mean(G1)	Centered mediator M: G2 - mean(G2)
1	1	6.051	1.000	.00	.00	.00
	2	2.252	1.639	.00	.04	.04
	3	1.026	2.428	.00	.00	.00
	4	.822	2.714	.00	.01	.01
	5	.634	3.091	.00	.03	.03
	6	.550	3.318	.00	.00	.00
	7	.258	4.846	.00	.01	.00
	8	.153	6.294	.00	.12	.09
	9	.132	6.773	.00	.77	.80
	10	.067	9.515	.01	.00	.00
	11	.054	10.579	.01	.01	.00
	12	.002	52.520	.98	.02	.02

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

Collinearity Diagnostics^a

Model	Dimension	Variance Proportions					
		Centered moderator W: studytime - mean (studytime)	Interaction term: centered G2 x centered studytime	failures	absences	age	Medu
1	1	.00	.00	.00	.01	.00	.00
	2	.04	.00	.04	.00	.00	.00
	3	.23	.56	.04	.01	.00	.00
	4	.70	.30	.00	.00	.00	.00
	5	.01	.08	.79	.02	.00	.00
	6	.02	.02	.04	.92	.00	.00
	7	.00	.01	.02	.00	.00	.08
	8	.00	.00	.00	.00	.00	.03
	9	.00	.00	.00	.00	.00	.01
	10	.00	.02	.01	.01	.01	.26
	11	.00	.00	.01	.02	.02	.61
	12	.00	.01	.07	.01	.97	.01

Moderated Mediation Outcome Model
Direct effect, mediator effect, moderator effect, and M x W

Collinearity Diagnostics^a

		Variance Proportions		
Model	Dimension	Fedu	traveltime	health
1	1	.00	.00	.00
	2	.00	.00	.00
	3	.00	.00	.00
	4	.00	.00	.00
	5	.00	.00	.00
	6	.00	.01	.01
	7	.10	.32	.00
	8	.04	.19	.54
	9	.01	.04	.08
	10	.68	.14	.13
	11	.17	.28	.21
	12	.01	.01	.01

a. Dependent Variable: Outcome Y: final grade

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.29516	19.01231	11.90601	2.983139	649
Residual	-8.953989	5.739892	.000000	1.240170	649
Std. Predicted Value	-4.090	2.382	.000	1.000	649
Std. Residual	-7.158	4.589	.000	.991	649

a. Dependent Variable: Outcome Y: final grade

Moderation-only Sensitivity Model

>Warning # 2004. Command name: SUBTITLE

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

Moderation-only Sensitivity Model
Check interaction of mediator and moderator without extended

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Interaction term: centered G2 x centered studytime, Centered mediator M: G2 - mean (G2), Centered moderator W: studytime - mean (studytime), Centered predictor X: G1 - mean (G1) ^b	.	Enter

a. Dependent Variable: Outcome Y: final grade

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.922 ^a	.850	.849	1.256978

a. Predictors: (Constant), Interaction term: centered G2 x centered studytime, Centered mediator M: G2 - mean(G2), Centered moderator W: studytime - mean(studytime), Centered predictor X: G1 - mean(G1)

Moderation-only Sensitivity Model
Check interaction of mediator and moderator without extended

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5745.751	4	1436.438	909.142	.000 ^b
	Residual	1017.515	644	1.580		
	Total	6763.267	648			

a. Dependent Variable: Outcome Y: final grade

b. Predictors: (Constant), Interaction term: centered G2 x centered studytime, Centered mediator M: G2 - mean(G2), Centered moderator W: studytime - mean(studytime), Centered predictor X: G1 - mean(G1)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.934	.051		234.934	.000
	Centered predictor X: G1 - mean(G1)	.145	.036	.123	4.028	.000
	Centered mediator M: G2 - mean(G2)	.894	.034	.806	26.460	.000
	Centered moderator W: studytime - mean (studytime)	.107	.062	.027	1.722	.086
	Interaction term: centered G2 x centered studytime	-.048	.021	-.036	-2.324	.020

Moderation-only Sensitivity Model
Check interaction of mediator and moderator without extended

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	11.834	12.034
	Centered predictor X: G1 - mean(G1)	.074	.216
	Centered mediator M: G2 - mean(G2)	.828	.961
	Centered moderator W: studytime - mean (studytime)	-.015	.228
	Interaction term: centered G2 x centered studytime	-.089	-.008

a. Dependent Variable: Outcome Y: final grade

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions	
					Centered predictor X: G1 - mean(G1)	Centered mediator M: G2 - mean(G2)
1	1	2.000	1.000	.00	.05	.05
	2	1.239	1.271	.37	.00	.00
	3	.888	1.501	.15	.01	.02
	4	.737	1.647	.49	.00	.00
	5	.135	3.854	.00	.93	.93

Moderation-only Sensitivity Model
Check interaction of mediator and moderator without extended

Collinearity Diagnostics^a

Model	Dimension	Variance Proportions	
		Centered moderator W: studytime - mean (studytime)	Interaction term: centered G2 x centered studytime
1	1	.05	.00
	2	.01	.37
	3	.75	.03
	4	.18	.59
	5	.00	.00

a. Dependent Variable: Outcome Y: final grade

Observed and Predicted Outcome Diagnostics

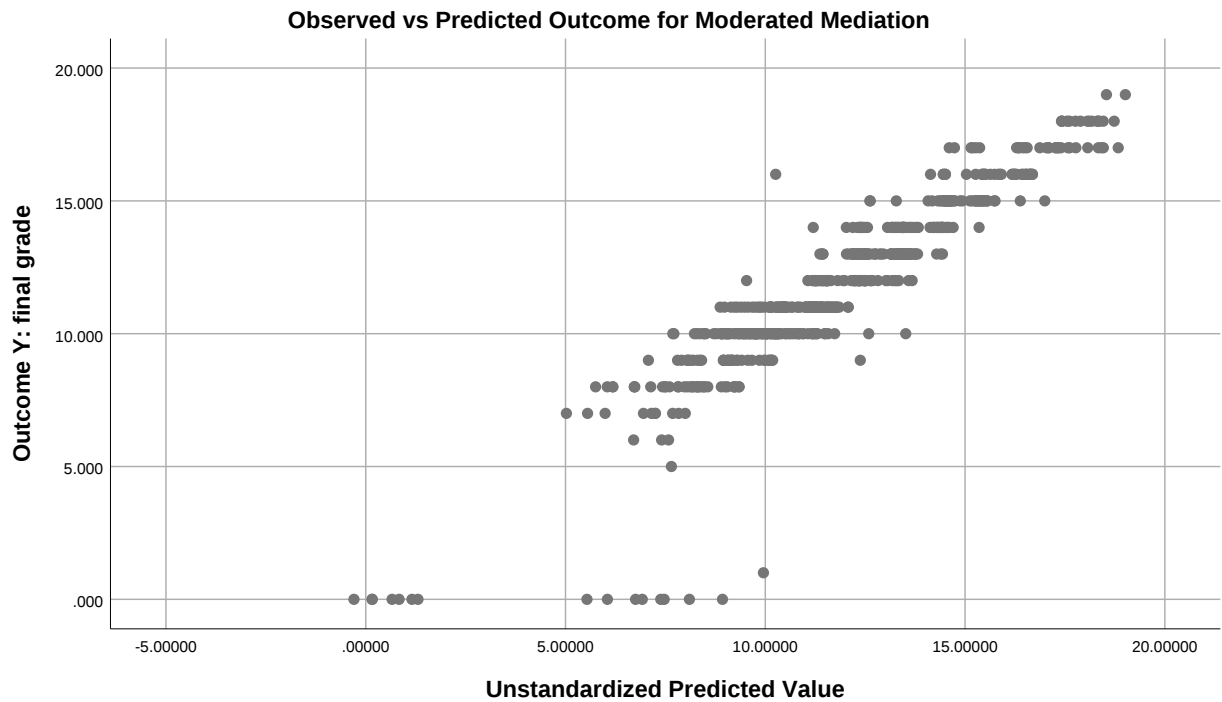
Observed and Predicted Outcome Diagnostics
 Saved predicted values and residuals from outcome model

Descriptives

Descriptive Statistics

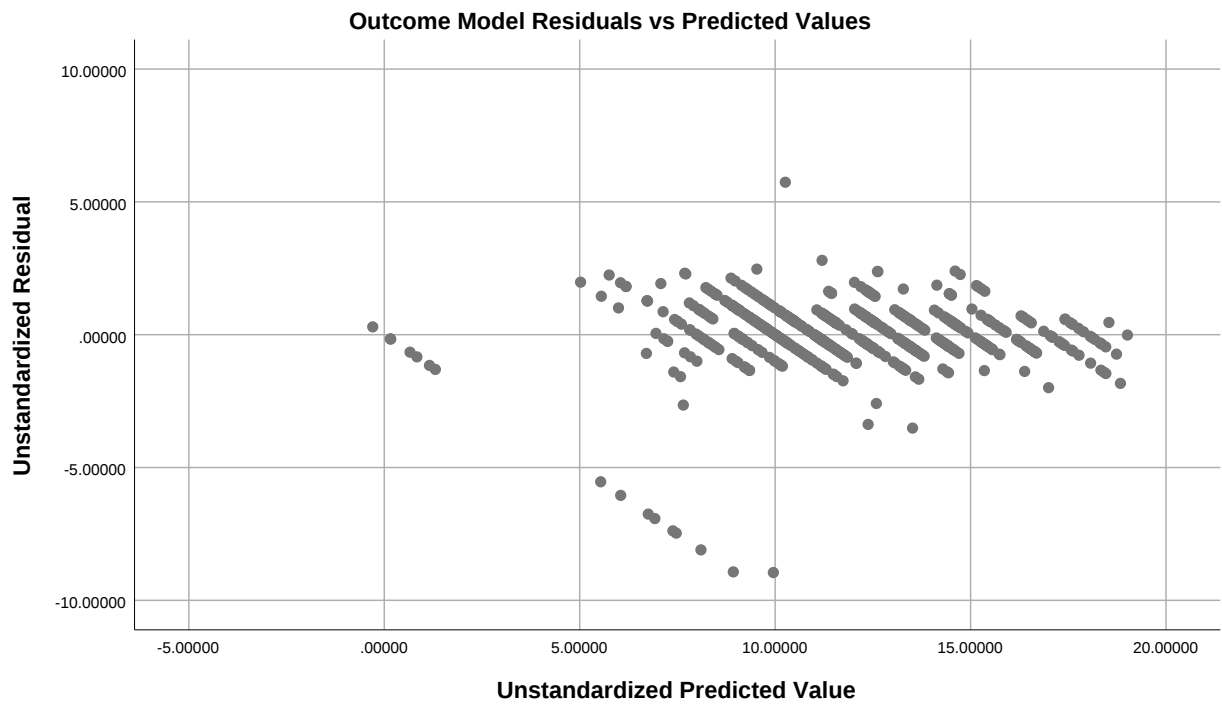
	N	Minimum	Maximum	Mean	Std. Deviation
Unstandardized Predicted Value	649	-.29516	19.01231	11.9060092	2.98313896
Unstandardized Residual	649	-8.95399	5.73989	.0000000	1.24017002
Valid N (listwise)	649				

Graph



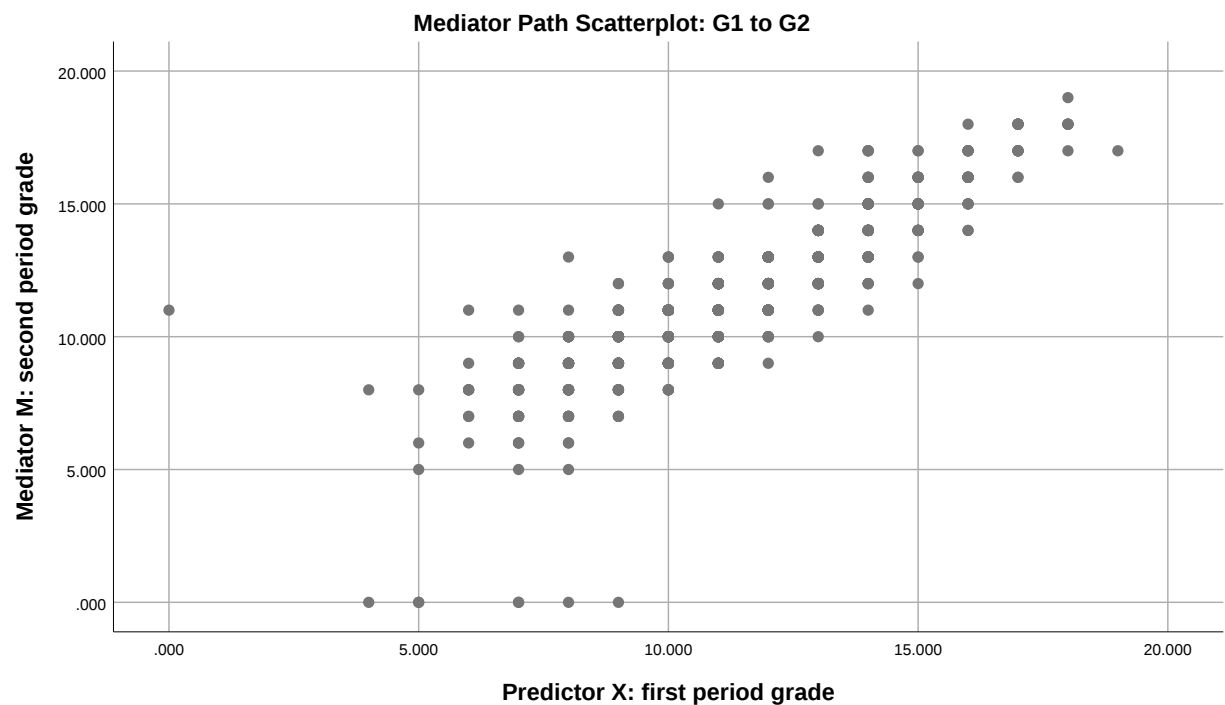
Graph

Observed and Predicted Outcome Diagnostics
Saved predicted values and residuals from outcome model



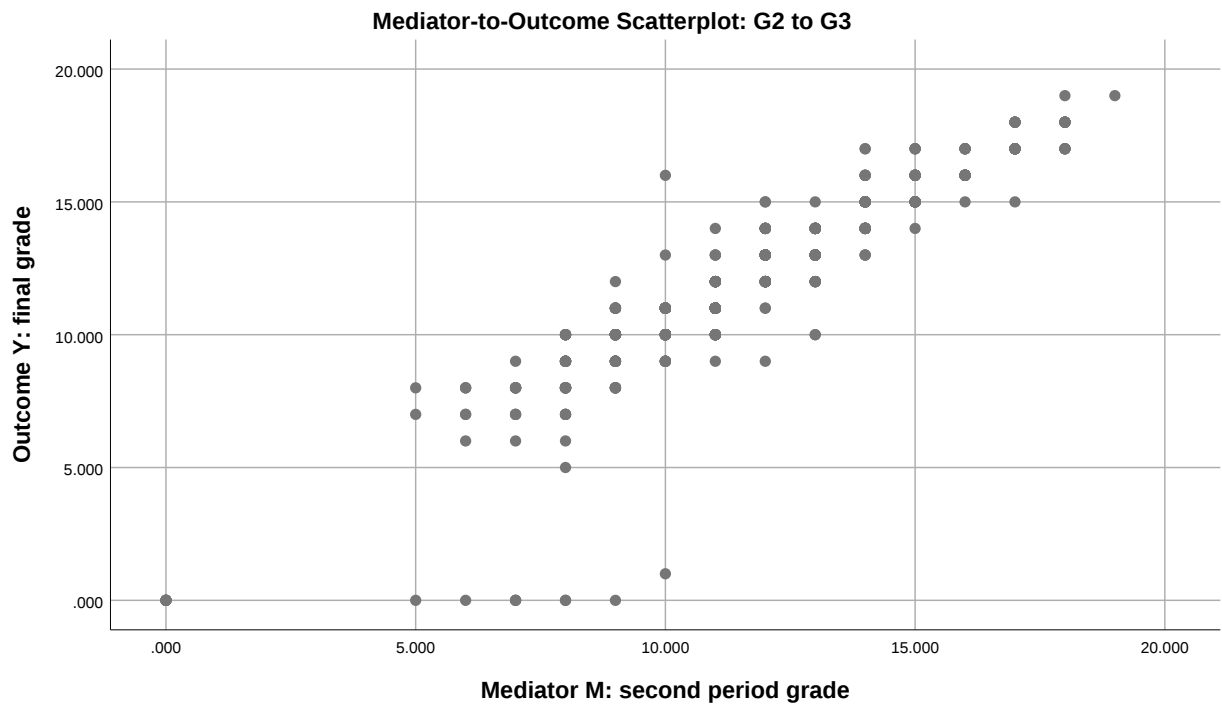
Graph

Observed and Predicted Outcome Diagnostics
Saved predicted values and residuals from outcome model



Graph

Observed and Predicted Outcome Diagnostics
Saved predicted values and residuals from outcome model



Moderated Mediation Reporting Guide
Howto report the SPSS output