

Host

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Kendall's Tau Correlation

Kendall's Tau Correlation
Import data

Kendall's Tau Descriptive Context

>Warning # 2004. Command name: SUBTITLE

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

Kendall's Tau Descriptive Context
Descriptive statistics for variables used in the Kendall mat

Descriptives

[KendallsTauData] D:\DATA ANALYSIS\G Correlation Tests\Kendalls Tau\SPSS_Output\sav\Kendalls-Tau-data.sav

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
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
Weekly study time ordinal group	649	1	4	1.93	.830
Number of previous class failures	649	0	3	.22	.593
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
Number of school absences	649	0	32	3.66	4.641
First period grade / primary Kendall predictor	649	0	19	11.40	2.745
Second period grade	649	0	19	11.57	2.914
Final grade / primary Kendall outcome	649	0	19	11.91	3.231
Valid N (listwise)	649				

Kendall's Tau Primary Test

Kendall's Tau Primary Test
 Primary pair: G1 and G3. H0: tau-b = 0

Nonparametric Correlations

Correlations

			First period grade / primary Kendall predictor	Final grade / primary Kendall outcome
Kendall's tau_b	First period grade / primary Kendall predictor	Correlation Coefficient	1.000	.766**
		Sig. (2-tailed)	.	.000
		N	649	649
	Final grade / primary Kendall outcome	Correlation Coefficient	.766**	1.000
		Sig. (2-tailed)	.000	.
		N	649	649

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

Kendall's Tau Matrix

>Warning # 2004. Command name: SUBTITLE

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Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Nonparametric Correlations

Correlations

			age	Medu	Fedu
Kendall's tau_b	age	Correlation Coefficient	1.000	-.085**	-.092**
		Sig. (2-tailed)	.	.009	.005
		N	649	649	649
	Medu	Correlation Coefficient	-.085**	1.000	.570**
		Sig. (2-tailed)	.009	.	.000
		N	649	649	649
	Fedu	Correlation Coefficient	-.092**	.570**	1.000
		Sig. (2-tailed)	.005	.000	.
		N	649	649	649
	traveltime	Correlation Coefficient	.058	-.231**	-.196**
		Sig. (2-tailed)	.088	.000	.000
		N	649	649	649
	Weekly study time ordinal group	Correlation Coefficient	.015	.084*	.059
		Sig. (2-tailed)	.661	.012	.079
		N	649	649	649
	Number of previous class failures	Correlation Coefficient	.258**	-.187**	-.145**
		Sig. (2-tailed)	.000	.000	.000
		N	649	649	649
	famrel	Correlation Coefficient	-.016	.021	.018
		Sig. (2-tailed)	.624	.521	.587
		N	649	649	649
	freetime	Correlation Coefficient	-.008	-.023	.000
		Sig. (2-tailed)	.806	.477	.999
		N	649	649	649
	goout	Correlation Coefficient	.107**	.008	.024
		Sig. (2-tailed)	.001	.795	.461
		N	649	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			traveltime	Weekly study time ordinal group
Kendall's tau_b	age	Correlation Coefficient	.058	.015
		Sig. (2-tailed)	.088	.661
		N	649	649
	Medu	Correlation Coefficient	-.231**	.084*
		Sig. (2-tailed)	.000	.012
		N	649	649
	Fedu	Correlation Coefficient	-.196**	.059
		Sig. (2-tailed)	.000	.079
		N	649	649
	traveltime	Correlation Coefficient	1.000	-.081*
		Sig. (2-tailed)	.	.023
		N	649	649
	Weekly study time ordinal group	Correlation Coefficient	-.081*	1.000
		Sig. (2-tailed)	.023	.
		N	649	649
	Number of previous class failures	Correlation Coefficient	.116**	-.148**
		Sig. (2-tailed)	.002	.000
		N	649	649
	famrel	Correlation Coefficient	-.023	.017
		Sig. (2-tailed)	.510	.617
		N	649	649
	freetime	Correlation Coefficient	-.001	-.067*
		Sig. (2-tailed)	.981	.045
		N	649	649
	goout	Correlation Coefficient	.035	-.072*
		Sig. (2-tailed)	.302	.031
		N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			Number of previous class failures	famrel
Kendall's tau_b	age	Correlation Coefficient	.258**	-.016
		Sig. (2-tailed)	.000	.624
		N	649	649
	Medu	Correlation Coefficient	-.187**	.021
		Sig. (2-tailed)	.000	.521
		N	649	649
	Fedu	Correlation Coefficient	-.145**	.018
		Sig. (2-tailed)	.000	.587
		N	649	649
	traveltime	Correlation Coefficient	.116**	-.023
		Sig. (2-tailed)	.002	.510
		N	649	649
	Weekly study time ordinal group	Correlation Coefficient	-.148**	.017
		Sig. (2-tailed)	.000	.617
		N	649	649
	Number of previous class failures	Correlation Coefficient	1.000	-.053
		Sig. (2-tailed)	.	.137
		N	649	649
	famrel	Correlation Coefficient	-.053	1.000
		Sig. (2-tailed)	.137	.
		N	649	649
	freetime	Correlation Coefficient	.090*	.123**
		Sig. (2-tailed)	.010	.000
		N	649	649
	goout	Correlation Coefficient	.037	.075*
		Sig. (2-tailed)	.288	.024
		N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			freetime	goout	Dalc
Kendall's tau_b	age	Correlation Coefficient	-.008	.107**	.071*
		Sig. (2-tailed)	.806	.001	.038
		N	649	649	649
	Medu	Correlation Coefficient	-.023	.008	.002
		Sig. (2-tailed)	.477	.795	.952
		N	649	649	649
	Fedu	Correlation Coefficient	.000	.024	-.004
		Sig. (2-tailed)	.999	.461	.900
		N	649	649	649
	traveltime	Correlation Coefficient	-.001	.035	.063
		Sig. (2-tailed)	.981	.302	.080
		N	649	649	649
	Weekly study time ordinal group	Correlation Coefficient	-.067*	-.072*	-.155**
		Sig. (2-tailed)	.045	.031	.000
		N	649	649	649
	Number of previous class failures	Correlation Coefficient	.090*	.037	.103**
		Sig. (2-tailed)	.010	.288	.005
		N	649	649	649
	famrel	Correlation Coefficient	.123**	.075*	-.088*
		Sig. (2-tailed)	.000	.024	.012
		N	649	649	649
	freetime	Correlation Coefficient	1.000	.304**	.113**
		Sig. (2-tailed)	.	.000	.001
		N	649	649	649
	goout	Correlation Coefficient	.304**	1.000	.205**
		Sig. (2-tailed)	.000	.	.000
		N	649	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			Walc	health
Kendall's tau_b	age	Correlation Coefficient	.078 [*]	-.015
		Sig. (2-tailed)	.016	.640
		N	649	649
	Medu	Correlation Coefficient	-.015	.013
		Sig. (2-tailed)	.643	.687
		N	649	649
	Fedu	Correlation Coefficient	.025	.038
		Sig. (2-tailed)	.447	.244
		N	649	649
	traveltime	Correlation Coefficient	.028	-.055
		Sig. (2-tailed)	.419	.105
		N	649	649
	Weekly study time ordinal group	Correlation Coefficient	-.192 ^{**}	-.064
		Sig. (2-tailed)	.000	.056
		N	649	649
	Number of previous class failures	Correlation Coefficient	.058	.037
		Sig. (2-tailed)	.097	.296
		N	649	649
	famrel	Correlation Coefficient	-.087 ^{**}	.080 [*]
		Sig. (2-tailed)	.009	.017
		N	649	649
	freetime	Correlation Coefficient	.101 ^{**}	.080 [*]
		Sig. (2-tailed)	.002	.013
		N	649	649
	goout	Correlation Coefficient	.315 ^{**}	-.010
		Sig. (2-tailed)	.000	.753
		N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			Number of school absences	First period grade / primary Kendall predictor
Kendall's tau_b	age	Correlation Coefficient	.099**	-.128**
		Sig. (2-tailed)	.002	.000
		N	649	649
	Medu	Correlation Coefficient	-.006	.218**
		Sig. (2-tailed)	.862	.000
		N	649	649
	Fedu	Correlation Coefficient	.026	.185**
		Sig. (2-tailed)	.422	.000
		N	649	649
	traveltime	Correlation Coefficient	.019	-.136**
		Sig. (2-tailed)	.564	.000
		N	649	649
	Weekly study time ordinal group	Correlation Coefficient	-.096**	.219**
		Sig. (2-tailed)	.003	.000
		N	649	649
	Number of previous class failures	Correlation Coefficient	.105**	-.366**
		Sig. (2-tailed)	.002	.000
		N	649	649
	famrel	Correlation Coefficient	-.086**	.022
		Sig. (2-tailed)	.008	.493
		N	649	649
	freetime	Correlation Coefficient	-.023	-.082**
		Sig. (2-tailed)	.469	.007
		N	649	649
	goout	Correlation Coefficient	.084**	-.061*
		Sig. (2-tailed)	.008	.046
		N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

			Second period grade	Final grade / primary Kendall outcome
Kendall's tau_b	age	Correlation Coefficient	-.079**	-.048
		Sig. (2-tailed)	.010	.111
		N	649	649
	Medu	Correlation Coefficient	.223**	.223**
		Sig. (2-tailed)	.000	.000
		N	649	649
	Fedu	Correlation Coefficient	.195**	.186**
		Sig. (2-tailed)	.000	.000
		N	649	649
	traveltime	Correlation Coefficient	-.137**	-.121**
		Sig. (2-tailed)	.000	.000
		N	649	649
	Weekly study time ordinal group	Correlation Coefficient	.209**	.222**
		Sig. (2-tailed)	.000	.000
		N	649	649
	Number of previous class failures	Correlation Coefficient	-.368**	-.379**
		Sig. (2-tailed)	.000	.000
		N	649	649
	famrel	Correlation Coefficient	.048	.039
		Sig. (2-tailed)	.130	.213
		N	649	649
	freetime	Correlation Coefficient	-.095**	-.101**
		Sig. (2-tailed)	.002	.001
		N	649	649
	goout	Correlation Coefficient	-.088**	-.083**
		Sig. (2-tailed)	.004	.006
		N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		age	Medu	Fedu
Dalc	Correlation Coefficient	.071 [*]	.002	-.004
	Sig. (2-tailed)	.038	.952	.900
	N	649	649	649
Walc	Correlation Coefficient	.078 [*]	-.015	.025
	Sig. (2-tailed)	.016	.643	.447
	N	649	649	649
health	Correlation Coefficient	-.015	.013	.038
	Sig. (2-tailed)	.640	.687	.244
	N	649	649	649
Number of school absences	Correlation Coefficient	.099 ^{**}	-.006	.026
	Sig. (2-tailed)	.002	.862	.422
	N	649	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.128 ^{**}	.218 ^{**}	.185 ^{**}
	Sig. (2-tailed)	.000	.000	.000
	N	649	649	649
Second period grade	Correlation Coefficient	-.079 ^{**}	.223 ^{**}	.195 ^{**}
	Sig. (2-tailed)	.010	.000	.000
	N	649	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.048	.223 ^{**}	.186 ^{**}
	Sig. (2-tailed)	.111	.000	.000
	N	649	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		traveltime	Weekly study time ordinal group
Dalc	Correlation Coefficient	.063	-.155**
	Sig. (2-tailed)	.080	.000
	N	649	649
Walc	Correlation Coefficient	.028	-.192**
	Sig. (2-tailed)	.419	.000
	N	649	649
health	Correlation Coefficient	-.055	-.064
	Sig. (2-tailed)	.105	.056
	N	649	649
Number of school absences	Correlation Coefficient	.019	-.096**
	Sig. (2-tailed)	.564	.003
	N	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.136**	.219**
	Sig. (2-tailed)	.000	.000
	N	649	649
Second period grade	Correlation Coefficient	-.137**	.209**
	Sig. (2-tailed)	.000	.000
	N	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.121**	.222**
	Sig. (2-tailed)	.000	.000
	N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		Number of previous class failures	famrel
Dalc	Correlation Coefficient	.103**	-.088*
	Sig. (2-tailed)	.005	.012
	N	649	649
Walc	Correlation Coefficient	.058	-.087**
	Sig. (2-tailed)	.097	.009
	N	649	649
health	Correlation Coefficient	.037	.080*
	Sig. (2-tailed)	.296	.017
	N	649	649
Number of school absences	Correlation Coefficient	.105**	-.086**
	Sig. (2-tailed)	.002	.008
	N	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.366**	.022
	Sig. (2-tailed)	.000	.493
	N	649	649
Second period grade	Correlation Coefficient	-.368**	.048
	Sig. (2-tailed)	.000	.130
	N	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.379**	.039
	Sig. (2-tailed)	.000	.213
	N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		freetime	goout	Dalc
Dalc	Correlation Coefficient	.113**	.205**	1.000
	Sig. (2-tailed)	.001	.000	.
	N	649	649	649
Walc	Correlation Coefficient	.101**	.315**	.555**
	Sig. (2-tailed)	.002	.000	.000
	N	649	649	649
health	Correlation Coefficient	.080*	-.010	.074*
	Sig. (2-tailed)	.013	.753	.031
	N	649	649	649
Number of school absences	Correlation Coefficient	-.023	.084**	.088**
	Sig. (2-tailed)	.469	.008	.008
	N	649	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.082**	-.061*	-.165**
	Sig. (2-tailed)	.007	.046	.000
	N	649	649	649
Second period grade	Correlation Coefficient	-.095**	-.088**	-.165**
	Sig. (2-tailed)	.002	.004	.000
	N	649	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.101**	-.083**	-.171**
	Sig. (2-tailed)	.001	.006	.000
	N	649	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		Walc	health
Dalc	Correlation Coefficient	.555**	.074*
	Sig. (2-tailed)	.000	.031
	N	649	649
Walc	Correlation Coefficient	1.000	.094**
	Sig. (2-tailed)	.	.004
	N	649	649
health	Correlation Coefficient	.094**	1.000
	Sig. (2-tailed)	.004	.
	N	649	649
Number of school absences	Correlation Coefficient	.117**	-.009
	Sig. (2-tailed)	.000	.779
	N	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.124**	-.049
	Sig. (2-tailed)	.000	.108
	N	649	649
Second period grade	Correlation Coefficient	-.132**	-.078*
	Sig. (2-tailed)	.000	.010
	N	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.133**	-.083**
	Sig. (2-tailed)	.000	.007
	N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		Number of school absences	First period grade / primary Kendall predictor
Dalc	Correlation Coefficient	.088**	-.165**
	Sig. (2-tailed)	.008	.000
	N	649	649
Walc	Correlation Coefficient	.117**	-.124**
	Sig. (2-tailed)	.000	.000
	N	649	649
health	Correlation Coefficient	-.009	-.049
	Sig. (2-tailed)	.779	.108
	N	649	649
Number of school absences	Correlation Coefficient	1.000	-.130**
	Sig. (2-tailed)	.	.000
	N	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	-.130**	1.000
	Sig. (2-tailed)	.000	.
	N	649	649
Second period grade	Correlation Coefficient	-.126**	.781**
	Sig. (2-tailed)	.000	.000
	N	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	-.123**	.766**
	Sig. (2-tailed)	.000	.000
	N	649	649

Kendall's Tau Matrix
Pairwise Kendall tau-b correlations for numeric and ordinal

Correlations

		Second period grade	Final grade / primary Kendall outcome
Dalc	Correlation Coefficient	-.165**	-.171**
	Sig. (2-tailed)	.000	.000
	N	649	649
Walc	Correlation Coefficient	-.132**	-.133**
	Sig. (2-tailed)	.000	.000
	N	649	649
health	Correlation Coefficient	-.078*	-.083**
	Sig. (2-tailed)	.010	.007
	N	649	649
Number of school absences	Correlation Coefficient	-.126**	-.123**
	Sig. (2-tailed)	.000	.000
	N	649	649
First period grade / primary Kendall predictor	Correlation Coefficient	.781**	.766**
	Sig. (2-tailed)	.000	.000
	N	649	649
Second period grade	Correlation Coefficient	1.000	.870**
	Sig. (2-tailed)	.	.000
	N	649	649
Final grade / primary Kendall outcome	Correlation Coefficient	.870**	1.000
	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).

Kendall's Tau Rank Variables

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

Kendall's Tau Rank Variables
Average ranks are created to show the rank-based nature of K

RANK

Created Variables^a

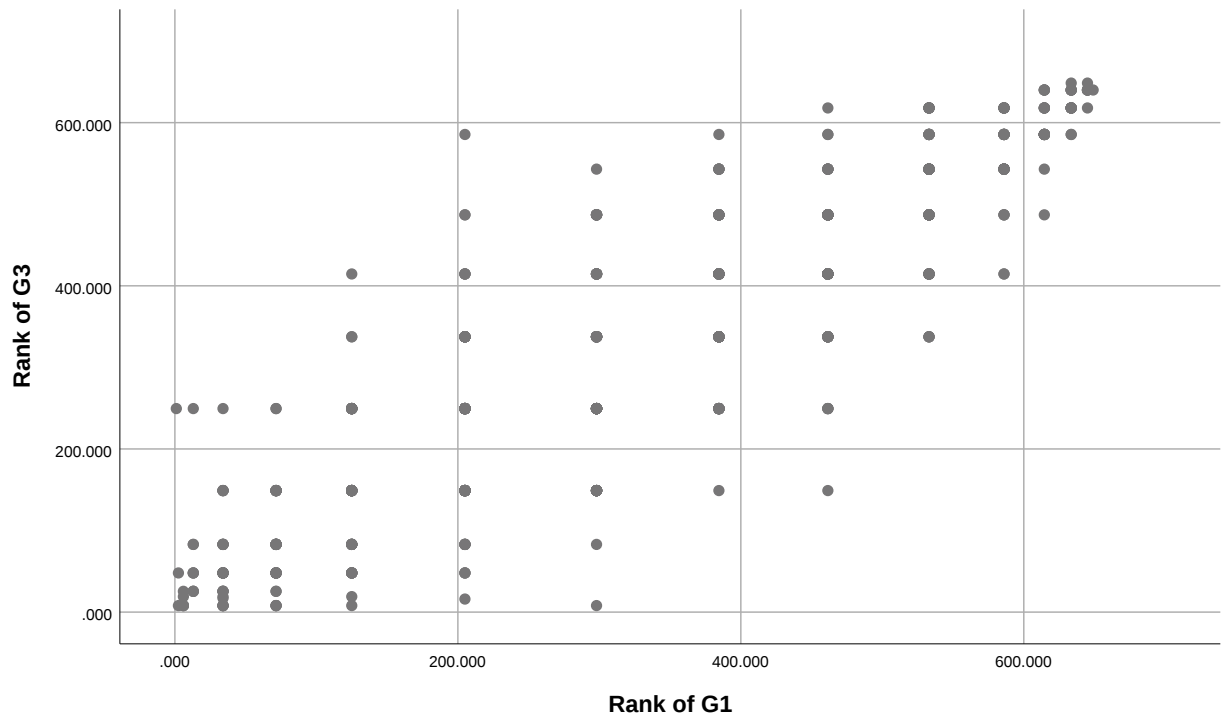
Source Variable	Function	New Variable	Label
G1 ^b	Rank	Rank_G1	Rank of G1
G3 ^b	Rank	Rank_G3	Rank of G3

- a. Mean rank of tied values is used for ties.
- b. Ranks are in ascending order.

Rank Scatterplot for Kendall's Tau

Rank Scatterplot for Kendall's Tau
Monotonic association check using the ranks of G1 and G3

Graph



Distribution Context for G1 and G3

>Warning # 2004. Command name: SUBTITLE

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

Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate

Explore

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
First period grade / primary Kendall predictor	649	100.0%	0	0.0%	649	100.0%
Final grade / primary Kendall outcome	649	100.0%	0	0.0%	649	100.0%

Descriptives

			Statistic	Std. Error
First period grade / primary Kendall predictor	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	
	Minimum		0	
	Maximum		19	
	Range		19	
	Interquartile Range		3	
	Skewness		-.003	.096
	Kurtosis		.037	.192
Final grade / primary Kendall outcome	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	

Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate

Descriptives

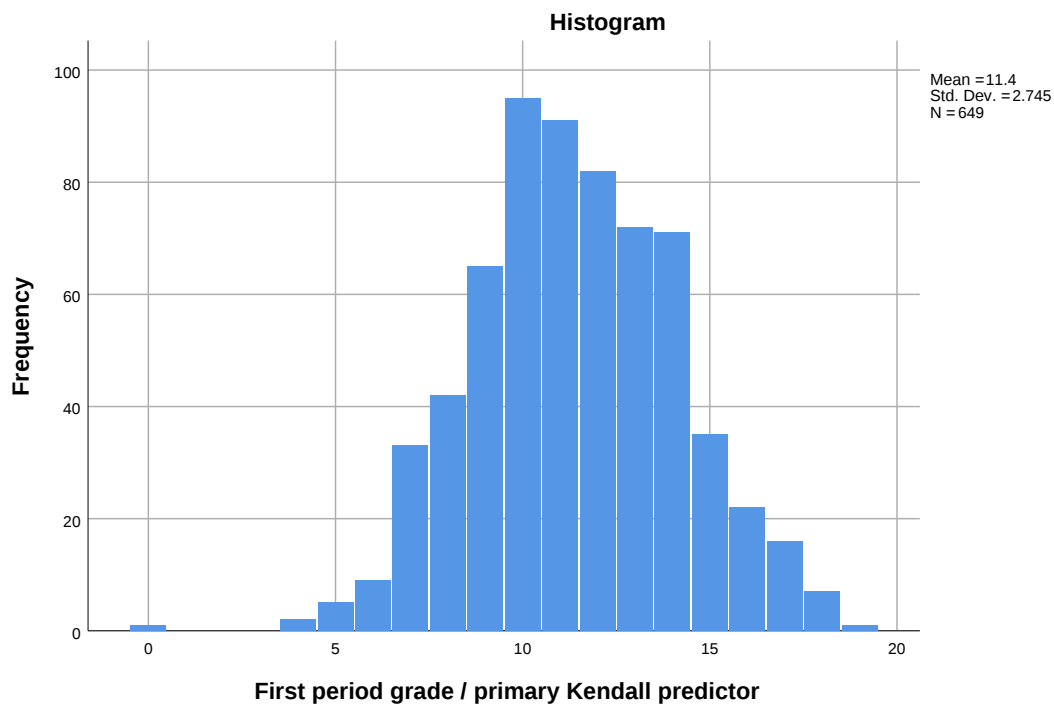
		Statistic	Std. Error
	Range	19	
	Interquartile Range	4	
	Skewness	-.913	.096
	Kurtosis	2.712	.192

Tests of Normality

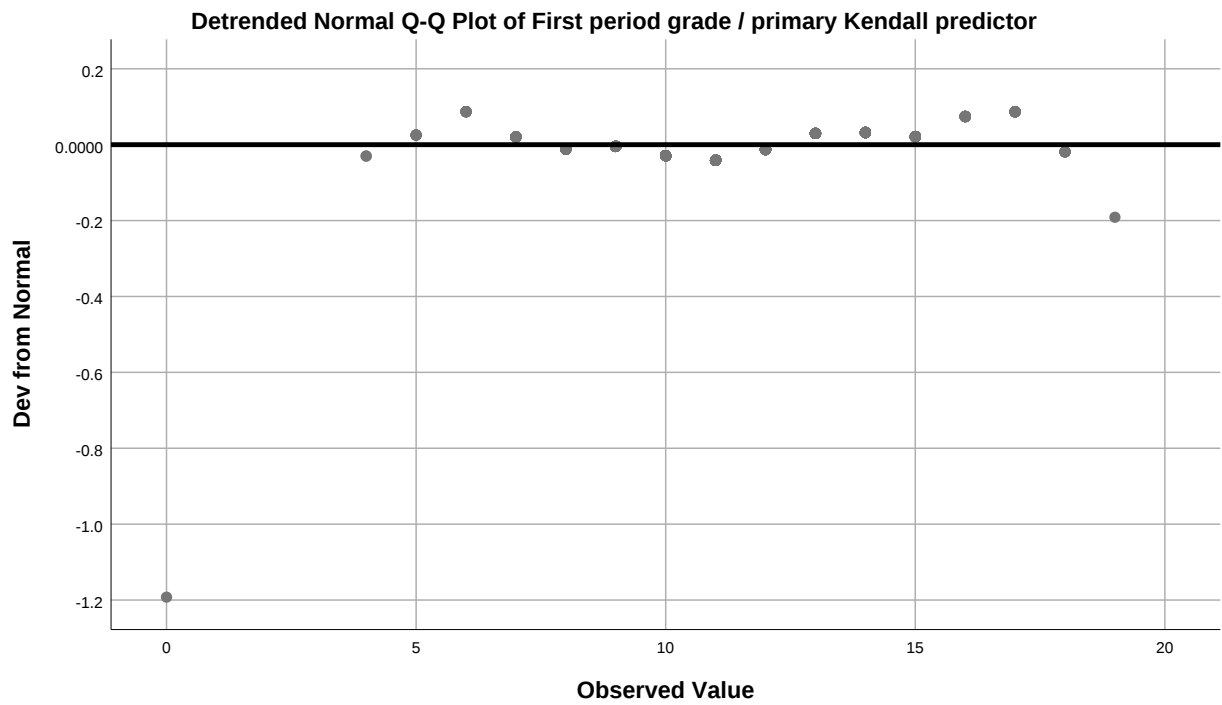
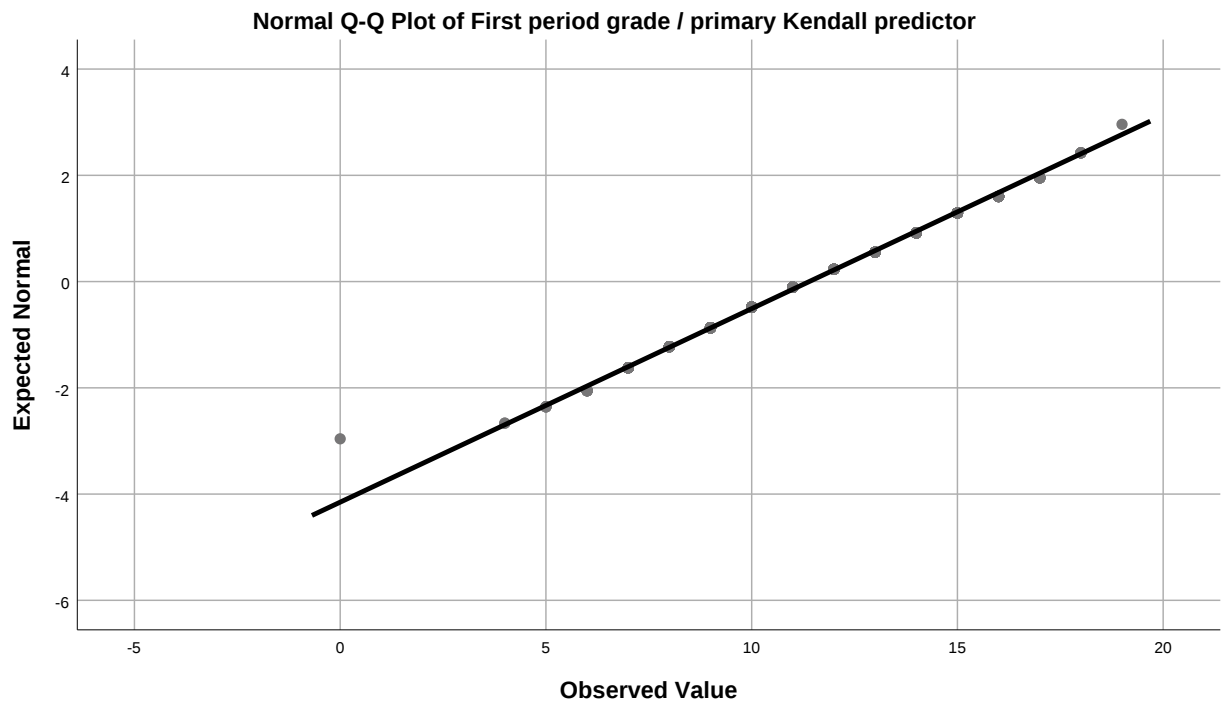
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
First period grade / primary Kendall predictor	.086	649	.000	.986	649	.000
Final grade / primary Kendall outcome	.124	649	.000	.926	649	.000

a. Lilliefors Significance Correction

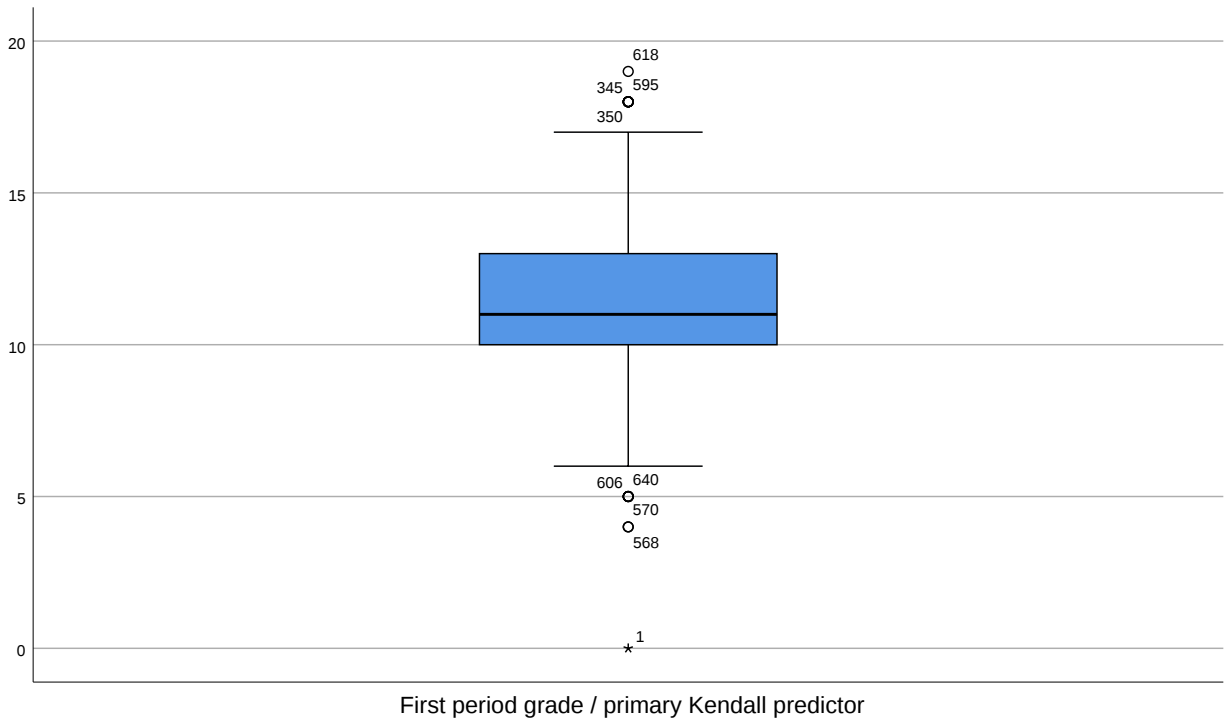
First period grade / primary Kendall predictor



Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate

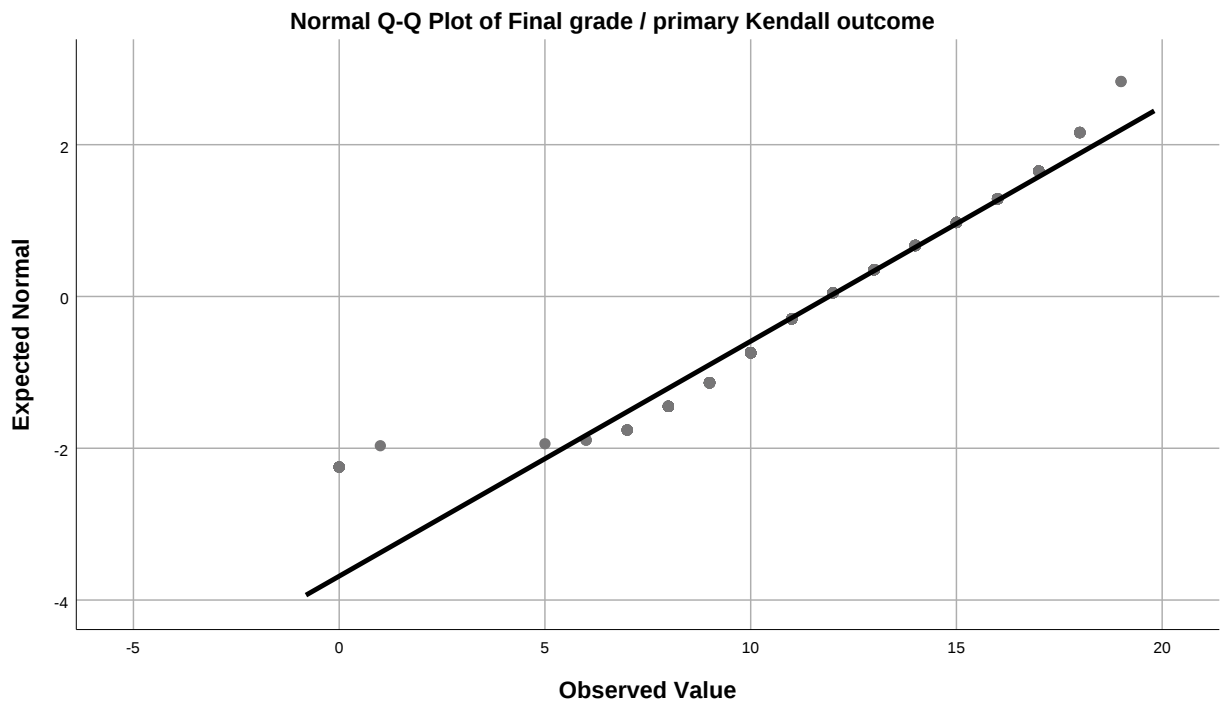
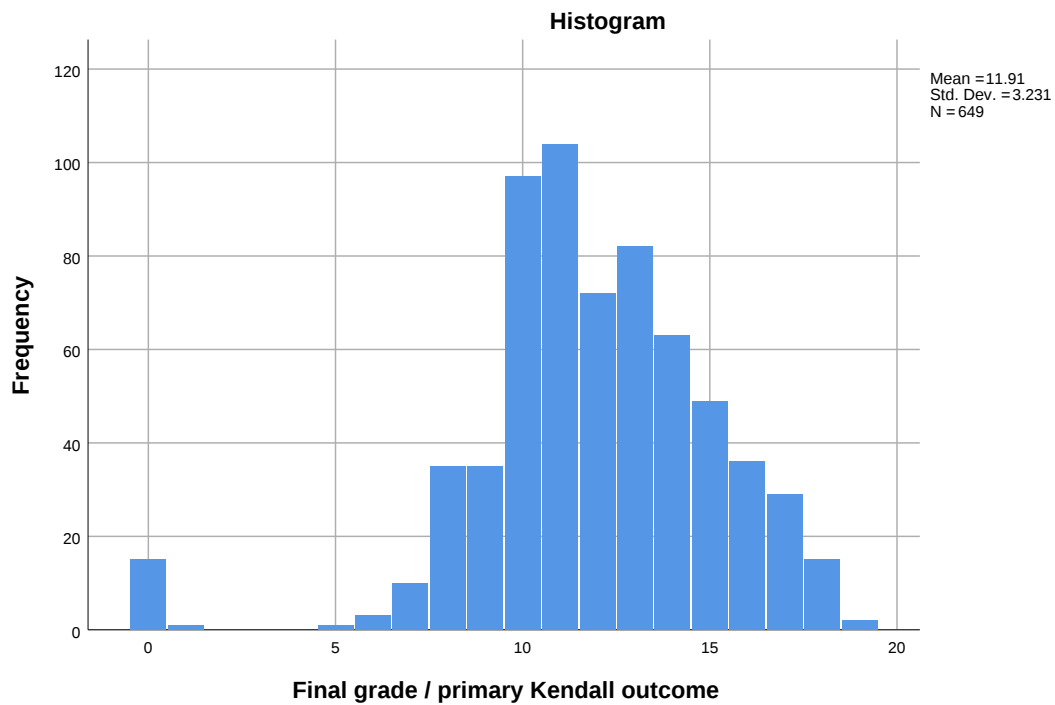


Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate



Final grade / primary Kendall outcome

Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate



Distribution Context for G1 and G3
Tied grade values are expected; Kendall's tau-b is appropriate

