General Linear Model

Mauchly's Test of Sphericity[a]

Measure: ErrorRateSqrt

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
Cursor	.887	3.080	5	.688	.930
Amp	.920	2.177	2	.337	.926
Width	.683	9.907	2	.007	.759
Cursor * Amp	.526	15.899	20	.726	.821
Cursor * Width	.478	18.308	20	.571	.806
Amp * Width	.806	5.466	9	.792	.919
Cursor * Amp * Width	.011	103.738	77	.030	.614

Mauchly's Test of Sphericity[a]

Measure: ErrorRateSqrt

	Epsilon[b]	
Within Subjects Effect	Huynh-Feldt	Lower-bound
Cursor	1.000	.333
Amp	.991	.500
Width	.795	.500
Cursor * Amp	1.000	.167
Cursor * Width	1.000	.167
Amp * Width	1.000	.250
Cursor * Amp * Width	.868	.083

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: Cursor + Amp + Width + Cursor * Amp + Cursor * Width + Amp * Width + Cursor * Amp * Width

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: ErrorRateSqrt

Source		Type III Sum of Squares	df	Mean Square
Cursor	Sphericity Assumed	.468	3	.156
	Greenhouse-Geisser	.468	2.791	.168
	Huynh-Feldt	.468	3.000	.156
	Lower-bound	.468	1.000	.468
Error(Cursor)	Sphericity Assumed	2.360	81	.029
	Greenhouse-Geisser	2.360	75.350	.031
	Huynh-Feldt	2.360	81.000	.029
	Lower-bound	2.360	27.000	.087
Amp	Sphericity Assumed	3.016	2	1.508
	Greenhouse-Geisser	3.016	1.851	1.629
	Huynh-Feldt	3.016	1.982	1.522
	Lower-bound	3.016	1.000	3.016
Error(Amp)	Sphericity Assumed	.942	54	.017
	Greenhouse-Geisser	.942	49.986	.019
	Huynh-Feldt	.942	53.506	.018
	Lower-bound	.942	27.000	.035
Width	Sphericity Assumed	4.063	2	2.031
	Greenhouse-Geisser	4.063	1.519	2.675
	Huynh-Feldt	4.063	1.590	2.555
	Lower-bound	4.063	1.000	4.063
Error(Width)	Sphericity Assumed	1.461	54	.027
	Greenhouse-Geisser	1.461	41.007	.036
	Huynh-Feldt	1.461	42.941	.034
	Lower-bound	1.461	27.000	.054
Cursor * Amp	Sphericity Assumed	.157	6	.026
	Greenhouse-Geisser	.157	4.924	.032
	Huynh-Feldt	.157	6.000	.026
	Lower-bound	.157	1.000	.157
Error(Cursor*Amp)	Sphericity Assumed	2.495	162	.015
	Greenhouse-Geisser	2.495	132.937	.019
	Huynh-Feldt	2.495	162.000	.015
	Lower-bound	2.495	27.000	.092
Cursor * Width	Sphericity Assumed	.358	6	.060
	Greenhouse-Geisser	.358	4.837	.074
	Huynh-Feldt	.358	6.000	.060
	Lower-bound	.358	1.000	.358
Error(Cursor*Width)	Sphericity Assumed	2.856	162	.018
	Greenhouse-Geisser	2.856	130.595	.022
	Huynh-Feldt	2.856	162.000	.018
	Lower-bound	2.856	27.000	.106

Tests of Within-Subjects Effects

Measure: ErrorRateSqrt

Source		F	Sig.	Partial Eta Squared
Cursor	Sphericity Assumed	5.350	.002	.165
	Greenhouse-Geisser	5.350	.003	.165
	Huynh-Feldt	5.350	.002	.165
	Lower-bound	5.350	.029	.165
Error(Cursor)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Amp	Sphericity Assumed	86.472	<.001	.762
	Greenhouse-Geisser	86.472	<.001	.762
	Huynh-Feldt	86.472	<.001	.762
	Lower-bound	86.472	<.001	.762
Error(Amp)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Width	Sphericity Assumed	75.109	<.001	.736
	Greenhouse-Geisser	75.109	<.001	.736
	Huynh-Feldt	75.109	<.001	.736
	Lower-bound	75.109	<.001	.736
Error(Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Amp	Sphericity Assumed	1.701	.124	.059
	Greenhouse-Geisser	1.701	.140	.059
	Huynh-Feldt	1.701	.124	.059
	Lower-bound	1.701	.203	.059
Error(Cursor*Amp)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Width	Sphericity Assumed	3.388	.004	.111
	Greenhouse-Geisser	3.388	.007	.111
	Huynh-Feldt	3.388	.004	.111
	Lower-bound	3.388	.077	.111
Error(Cursor*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			

Tests of Within-Subjects Effects

Measure: ErrorRateSqrt

Source		Type III Sum of Squares	df	Mean Square
Amp * Width	Sphericity Assumed	.418	4	.105
	Greenhouse-Geisser	.418	3.678	.114
	Huynh-Feldt	.418	4.000	.105
	Lower-bound	.418	1.000	.418
Error(Amp*Width)	Sphericity Assumed	1.819	108	.017
	Greenhouse-Geisser	1.819	99.296	.018
	Huynh-Feldt	1.819	108.000	.017
	Lower-bound	1.819	27.000	.067
Cursor * Amp * Width	Sphericity Assumed	.161	12	.013
	Greenhouse-Geisser	.161	7.371	.022
	Huynh-Feldt	.161	10.413	.016
	Lower-bound	.161	1.000	.161
Error(Cursor*Amp*Width)	Sphericity Assumed	5.884	324	.018
	Greenhouse-Geisser	5.884	199.023	.030
	Huynh-Feldt	5.884	281.151	.021
	Lower-bound	5.884	27.000	.218

Tests of Within-Subjects Effects

Measure: ErrorRateSqrt

Source		F	Sig.	Partial Eta Squared
Amp * Width	Sphericity Assumed	6.209	<.001	.187
	Greenhouse-Geisser	6.209	<.001	.187
	Huynh-Feldt	6.209	<.001	.187
	Lower-bound	6.209	.019	.187
Error(Amp*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Amp * Width	Sphericity Assumed	.741	.711	.027
	Greenhouse-Geisser	.741	.644	.027
	Huynh-Feldt	.741	.691	.027
	Lower-bound	.741	.397	.027
Error(Cursor*Amp*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			

Estimated Marginal Means

1. Grand Mean

Measure: ErrorRateSqrt

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
.282	.019	.243	.321

2. Cursor

Estimates

Measure: ErrorRateSqrt

Cursor	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	.319	.020	.278	.360
2	.268	.021	.225	.312
3	.265	.021	.222	.309
4	.276	.022	.230	.322

Pairwise Comparisons

Measure: ErrorRateSqrt

(I) Cursor	(J) Cursor	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	.050*	.017	.045	.001	.100
	3	.054*	.016	.011	.009	.098
	4	.043	.016	.064	-.002	.088
2	1	-.050*	.017	.045	-.100	-.001
	3	.003	.015	1.000	-.040	.047
	4	-.007	.014	1.000	-.048	.034
3	1	-.054*	.016	.011	-.098	-.009
	2	-.003	.015	1.000	-.047	.040
	4	-.011	.013	1.000	-.046	.025
4	1	-.043	.016	.064	-.088	.002
	2	.007	.014	1.000	-.034	.048
	3	.011	.013	1.000	-.025	.046

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

3. Amp

Estimates

Measure: ErrorRateSqrt

Amp	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	.207	.019	.168	.246
2	.304	.019	.264	.343
3	.336	.021	.292	.379

Pairwise Comparisons

Measure: ErrorRateSqrt

(I) Amp	(J) Amp	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-.097*	.009	<.001	-.119	-.075
	3	-.129*	.011	<.001	-.156	-.101
2	1	.097*	.009	<.001	.075	.119
	3	-.032*	.011	.023	-.060	-.004
3	1	.129*	.011	<.001	.101	.156
	2	.032*	.011	.023	.004	.060

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

4. Width

Estimates

Measure: ErrorRateSqrt

Width	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	.358	.024	.308	.408
2	.286	.020	.244	.327
3	.203	.015	.171	.234

Pairwise Comparisons

Measure: ErrorRateSqrt

(I) Width	(J) Width	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	.072*	.010	<.001	.047	.098
	3	.155*	.016	<.001	.115	.196
2	1	-.072*	.010	<.001	-.098	-.047
	3	.083*	.012	<.001	.053	.113
3	1	-.155*	.016	<.001	-.196	-.115
	2	-.083*	.012	<.001	-.113	-.053

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

7. Cursor * Width

Pairwise Comparisons

Measure: ErrorRateSqrt

Width	(I) Cursor	(J) Cursor	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for [b]...
						Lower Bound
1	1	2	.104*	.020	<.001	.046
		3	.086*	.017	<.001	.037
		4	.092*	.020	<.001	.036
	2	1	-.104*	.020	<.001	-.162
		3	-.017	.018	1.000	-.070
		4	-.012	.019	1.000	-.066
	3	1	-.086*	.017	<.001	-.135
		2	.017	.018	1.000	-.035
		4	.005	.022	1.000	-.057
	4	1	-.092*	.020	<.001	-.147
		2	.012	.019	1.000	-.041
		3	-.005	.022	1.000	-.068
2	1	2	.049	.026	.414	-.025
		3	.074*	.024	.032	.004
		4	.051	.018	.057	-.001
	2	1	-.049	.026	.414	-.123
		3	.025	.022	1.000	-.039
		4	.002	.026	1.000	-.072
	3	1	-.074*	.024	.032	-.144
		2	-.025	.022	1.000	-.089
		4	-.023	.021	1.000	-.083

Pairwise Comparisons

Measure: ErrorRateSqrt

Width	(I) Cursor	(J) Cursor	95% Confidence Interval for [b]... Upper Bound
1	1	2	.162
		3	.135
		4	.147
	2	1	-.046
		3	.035
		4	.041
	3	1	-.037
		2	.070
		4	.068
	4	1	-.036
		2	.066
		3	.057
2	1	2	.123
		3	.144
		4	.103
	2	1	.025
		3	.089
		4	.076
	3	1	-.004
		2	.039
		4	.037

Pairwise Comparisons

Measure: ErrorRateSqrt

Width	(I) Cursor	(J) Cursor	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for [b]... Lower Bound
	4	1	-.051	.018	.057	-.103
		2	-.002	.026	1.000	-.076
		3	.023	.021	1.000	-.037
3	1	2	-.002	.029	1.000	-.084
		3	.000	.025	1.000	-.072
		4	-.014	.025	1.000	-.086
	2	1	.002	.029	1.000	-.080
		3	.002	.026	1.000	-.073
		4	-.012	.023	1.000	-.079
	3	1	.000	.025	1.000	-.072
		2	-.002	.026	1.000	-.077
		4	-.014	.019	1.000	-.067
	4	1	.014	.025	1.000	-.059
		2	.012	.023	1.000	-.055
		3	.014	.019	1.000	-.039

Pairwise Comparisons

Measure: ErrorRateSqrt

Width	(I) Cursor	(J) Cursor	95% Confidence Interval for [b]... Upper Bound
	4	1	.001
		2	.072
		3	.083
3	1	2	.080
		3	.072
		4	.059
	2	1	.084
		3	.077
		4	.055
	3	1	.072
		2	.073
		4	.039
	4	1	.086
		2	.079
		3	.067

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

9. Amp * Width

Pairwise Comparisons

Measure: ErrorRateSqrt

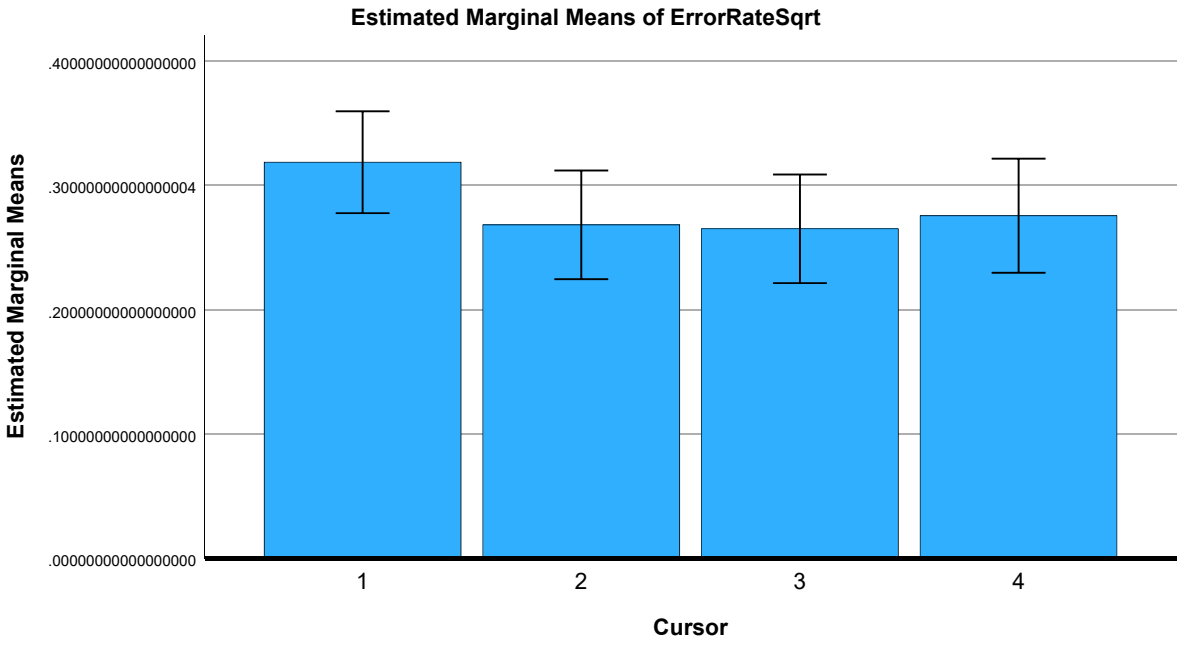
Width	(I) Amp	(J) Amp	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
1	1	2	-.131*	.019	<.001	-.180	-.082
		3	-.171*	.019	<.001	-.219	-.123
	2	1	.131*	.019	<.001	.082	.180
		3	-.040	.018	.094	-.085	.005
	3	1	.171*	.019	<.001	.123	.219
		2	.040	.018	.094	-.005	.085
2	1	2	-.122*	.015	<.001	-.161	-.083
		3	-.147*	.016	<.001	-.189	-.106
	2	1	.122*	.015	<.001	.083	.161
		3	-.025	.016	.390	-.067	.016
	3	1	.147*	.016	<.001	.106	.189
		2	.025	.016	.390	-.016	.067
3	1	2	-.038	.017	.101	-.080	.005
		3	-.068*	.020	.005	-.118	-.018
	2	1	.038	.017	.101	-.005	.080
		3	-.030	.017	.256	-.074	.013
	3	1	.068*	.020	.005	.018	.118
		2	.030	.017	.256	-.013	.074

Based on estimated marginal means

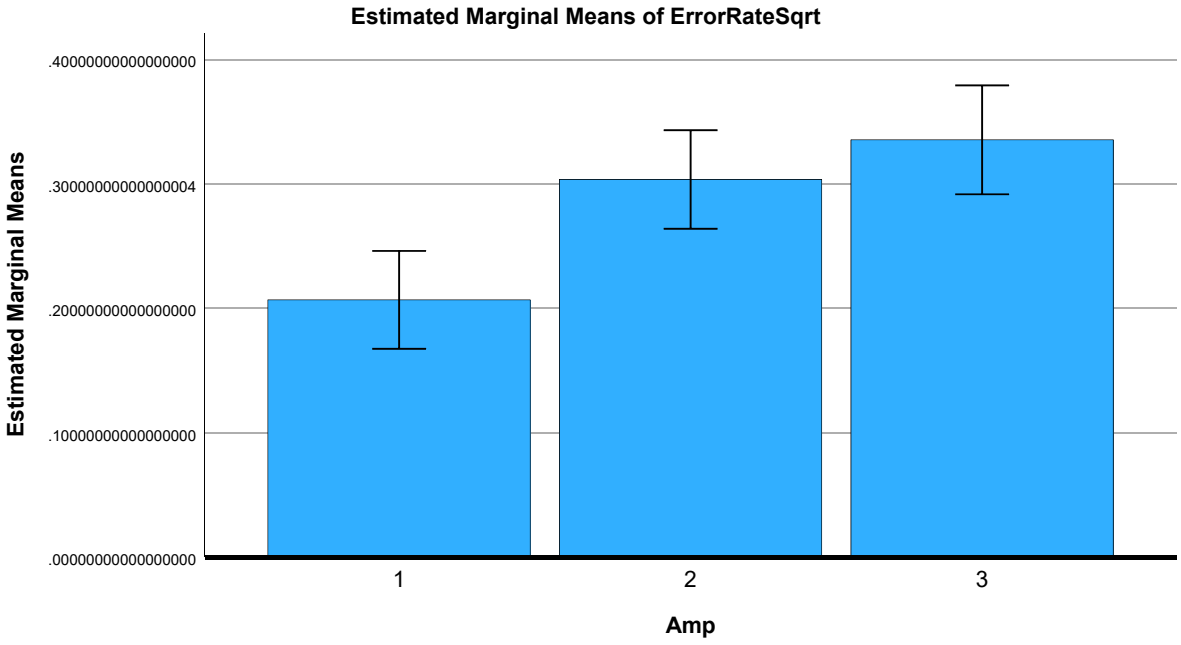
*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

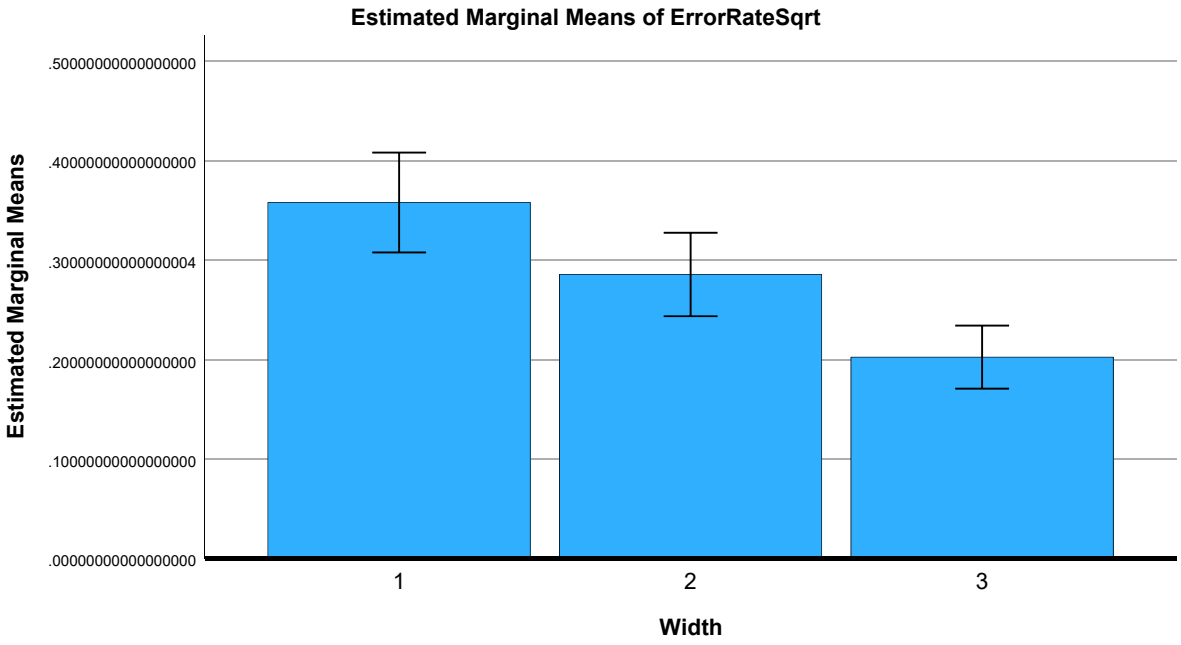
Profile Plots



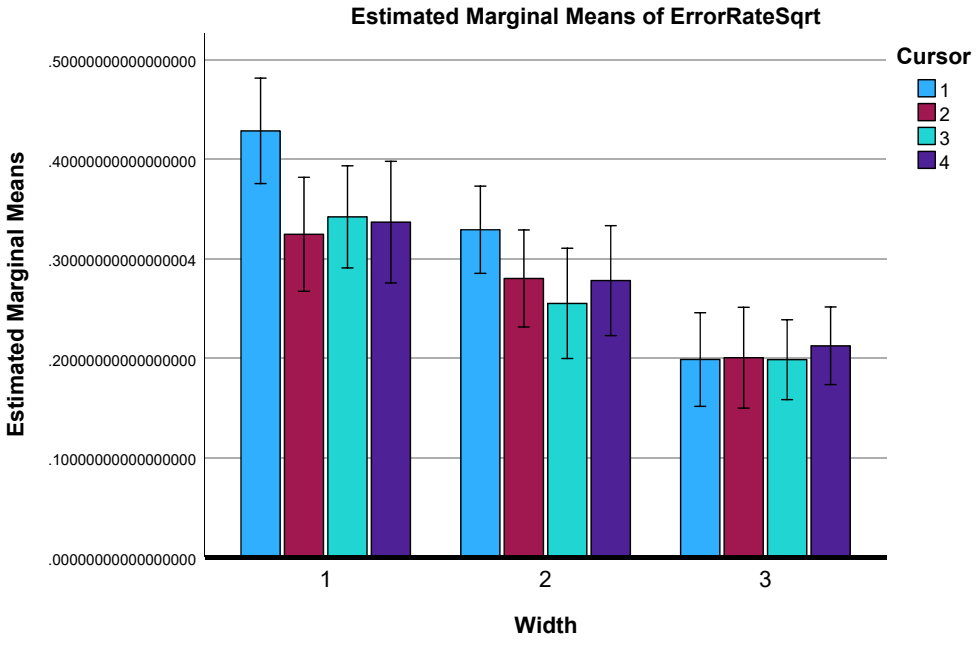
Error bars: 95% CI



Error bars: 95% CI



Error bars: 95% CI



Error bars: 95% CI