

Fishers LSD Test Post Hoc Analysis

Purpose: compare all pairs of group means using the pooled ANOVA error term.  
 H0 for each pair: the two group means are equal.  
 H1 for each pair: the two group means are different.

Analysis summary:

analysis	target_variable	group_variable	number_of_groups	number_of_pairwise_comparisons	alpha	anova_p_value	anova_decision_alpha_0_05	significant_ksd_pairs	important_note
Fishers LSD post hoc analysis	G3	studytime	4	6	0.05	5.705728e-10	Reject equal group means	4	Fishers LSD does not strongly control familywise error; use it when planned comparisons or a significant omnibus ANOVA justify follow-up tests

One-way ANOVA:

source	sum_of_squares	df	mean_square	f_value	p_value
Between groups	465.077825	3	155.025942	15.876268	5.705728e-10
Within groups	6298.188739	645	9.764634	NaN	NaN
Total	6763.266564	648	NaN	NaN	NaN

Group summary:

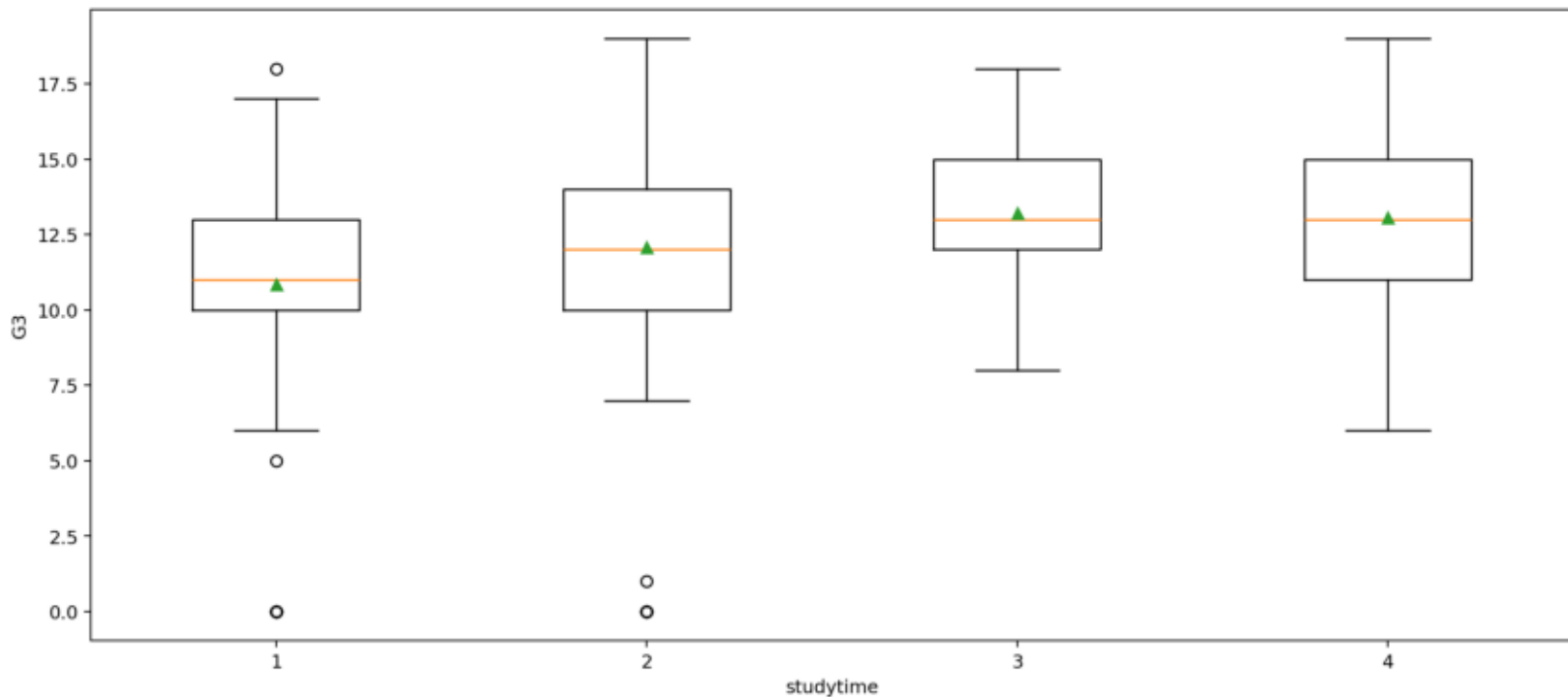
group	n	mean	standard_deviation	variance	standard_error	minimum	maximum	mean_ci95_lower	mean_ci95_upper
1	212	10.844340	3.218624	10.359541	0.221056	0	18	10.411070	11.277609
2	305	12.091803	3.243125	10.517860	0.185701	0	19	11.727830	12.455777
3	97	13.226804	2.502104	6.260524	0.254050	8	18	12.728866	13.724742
4	35	13.057143	3.038410	9.231933	0.513585	6	19	12.050516	14.063769

Fisher LSD pairwise comparisons:

group_1	group_2	mean_group_1	mean_group_2	mean_difference_group_1_minus_group_2	standard_error	t_value	df_error	fisher_ksd_p_value	ksd_critical_difference	ksd_ci95_lower	ksd_ci95_upper	alpha	decision_alpha_0_05
1	3	10.844340	13.226804	-2.382465	0.383048	-6.219751	645	8.952929e-10	0.752172	-3.134637	-1.630292	0.05	Significant by Fishers LSD
1	2	10.844340	12.091803	-1.247464	0.279419	-4.464497	645	9.473280e-06	0.548680	-1.796144	-0.698784	0.05	Significant by Fishers LSD
1	4	10.844340	13.057143	-2.212803	0.570131	-3.881220	645	1.146236e-04	1.119537	-3.332340	-1.093267	0.05	Significant by Fishers LSD
2	3	12.091803	13.226804	-1.135001	0.364255	-3.115953	645	1.914916e-03	0.715268	-1.850269	-0.419732	0.05	Significant by Fishers LSD
2	4	12.091803	13.057143	-0.965340	0.557678	-1.730998	645	8.393031e-02	1.095084	-2.060423	0.129744	0.05	Not significant by Fishers LSD
3	4	13.226804	13.057143	0.169661	0.616162	0.275352	645	7.831343e-01	1.209926	-1.040265	1.379587	0.05	Not significant by Fishers LSD

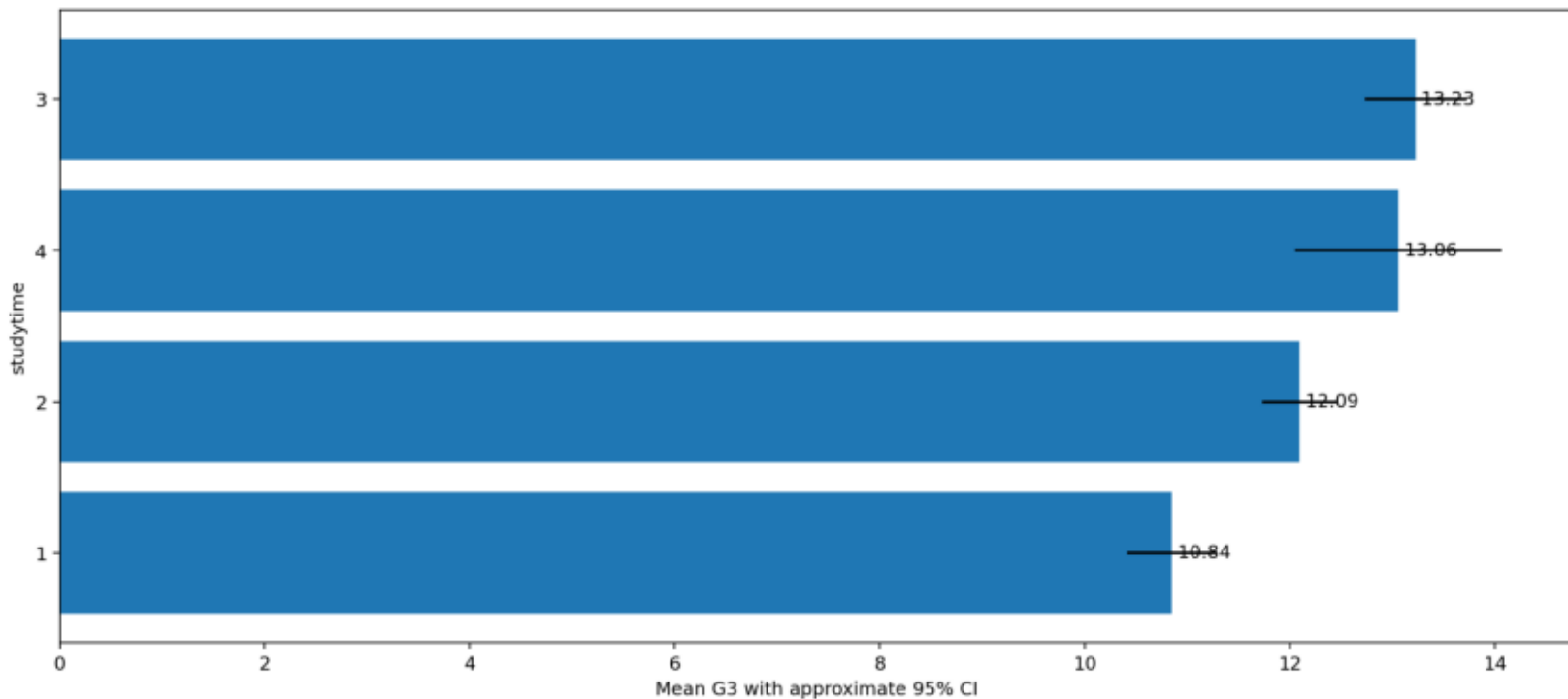
# Fishers LSD Test: Group Distributions

Boxplots show the score distribution before LSD pairwise mean comparisons.



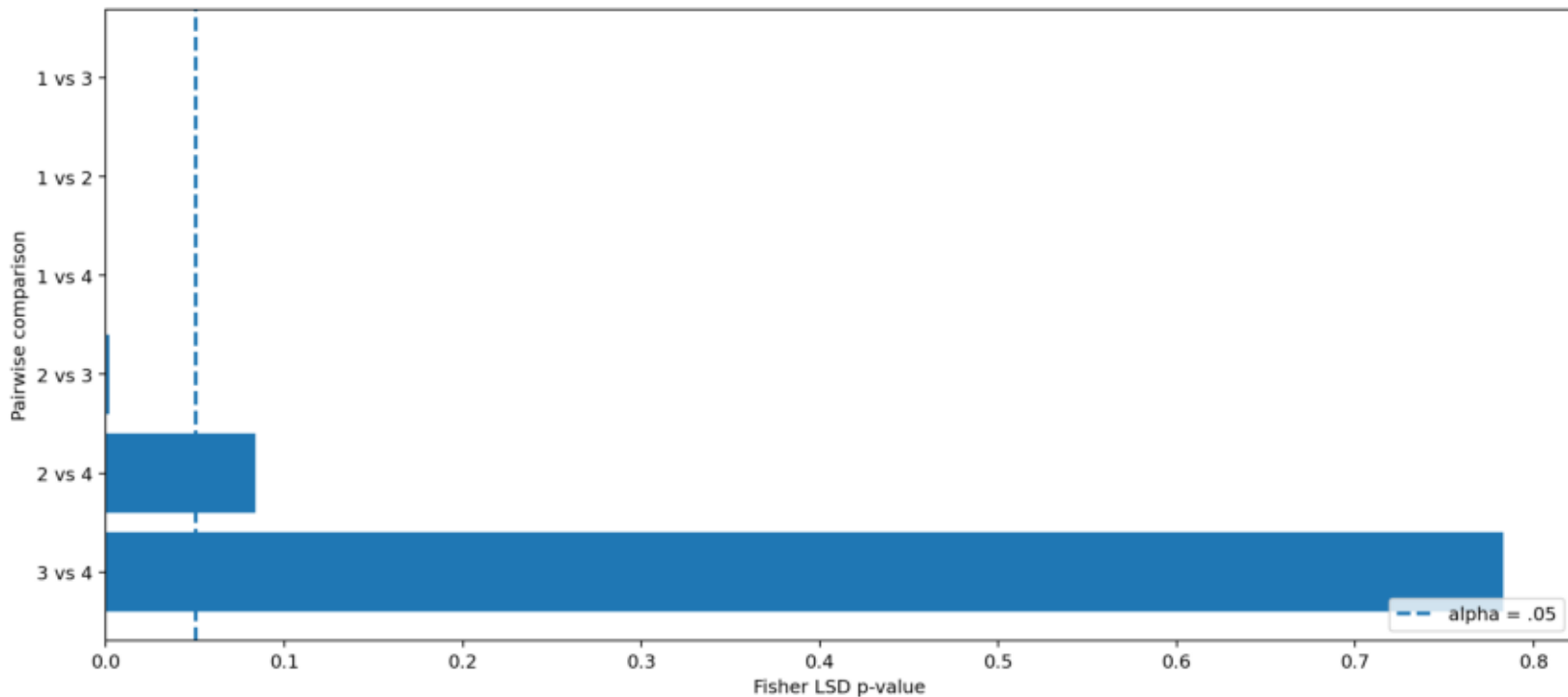
# Fishers LSD Test: Group Means

LSD comparisons test which group means differ using the pooled ANOVA error term.



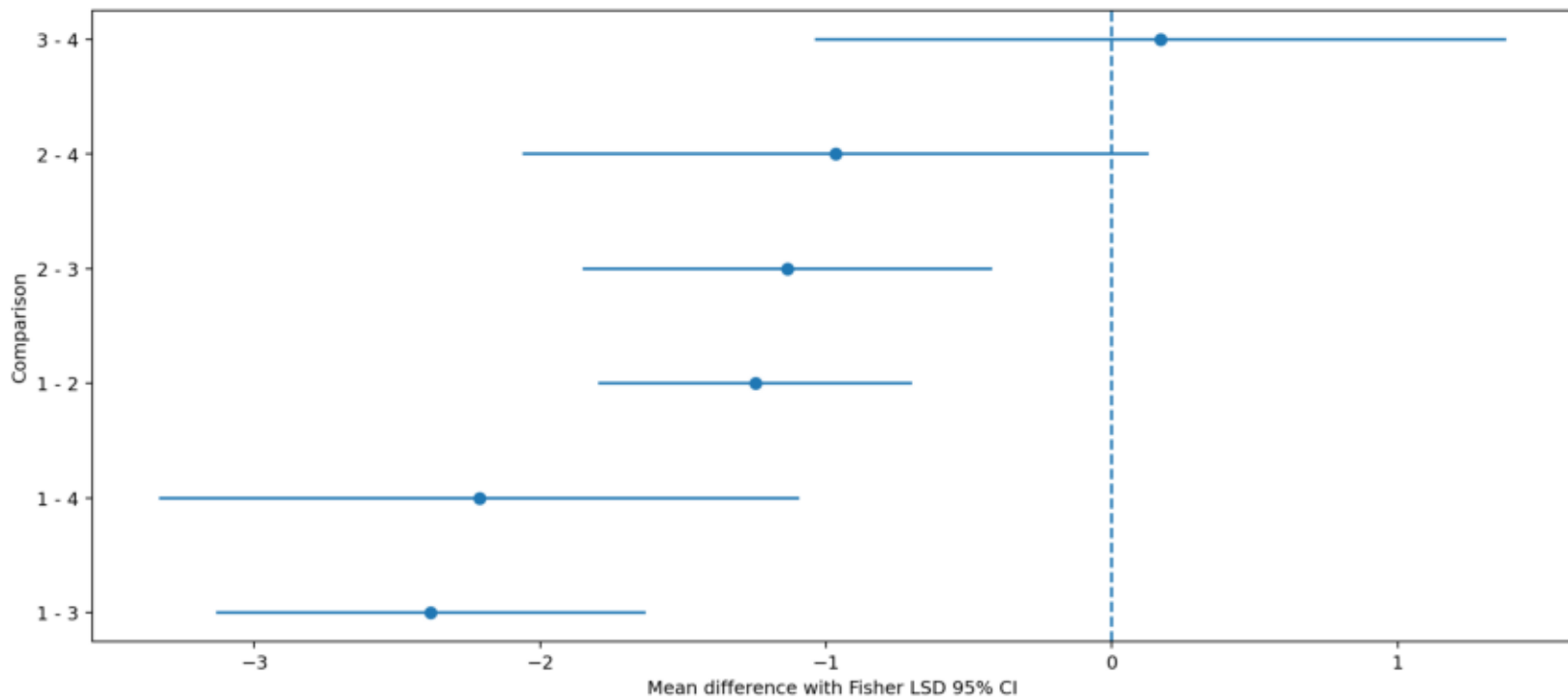
# Fishers LSD Test: Pairwise p-values

Comparisons left of the alpha line are significant by Fisher's LSD.



# Fishers LSD Test: Mean Differences

Intervals that do not cross zero indicate significant LSD pairwise differences.



# Fishers LSD Test: Critical Difference by Pair

A pair is significant when the absolute mean difference is larger than this LSD value.

