

Dunnetts Test for Comparing Groups Against a Control

Dependent variable: G3
 Group variable: studytime
 Control group: 1

H0: each comparison group mean equals the control group mean.
 H1: at least one comparison group mean differs from the control mean.

ANOVA table:

source	sum_of_squares	df	mean_square	f_value	p_value	eta_squared	omega_squared
Between groups	465.077825	3	155.025942	15.876268	5.705728e-10	0.068765	0.064341
Within groups	6298.188739	645	9.764634	NaN	NaN	NaN	NaN
Total	6763.266564	648	NaN	NaN	NaN	NaN	NaN

Dunnett comparisons:

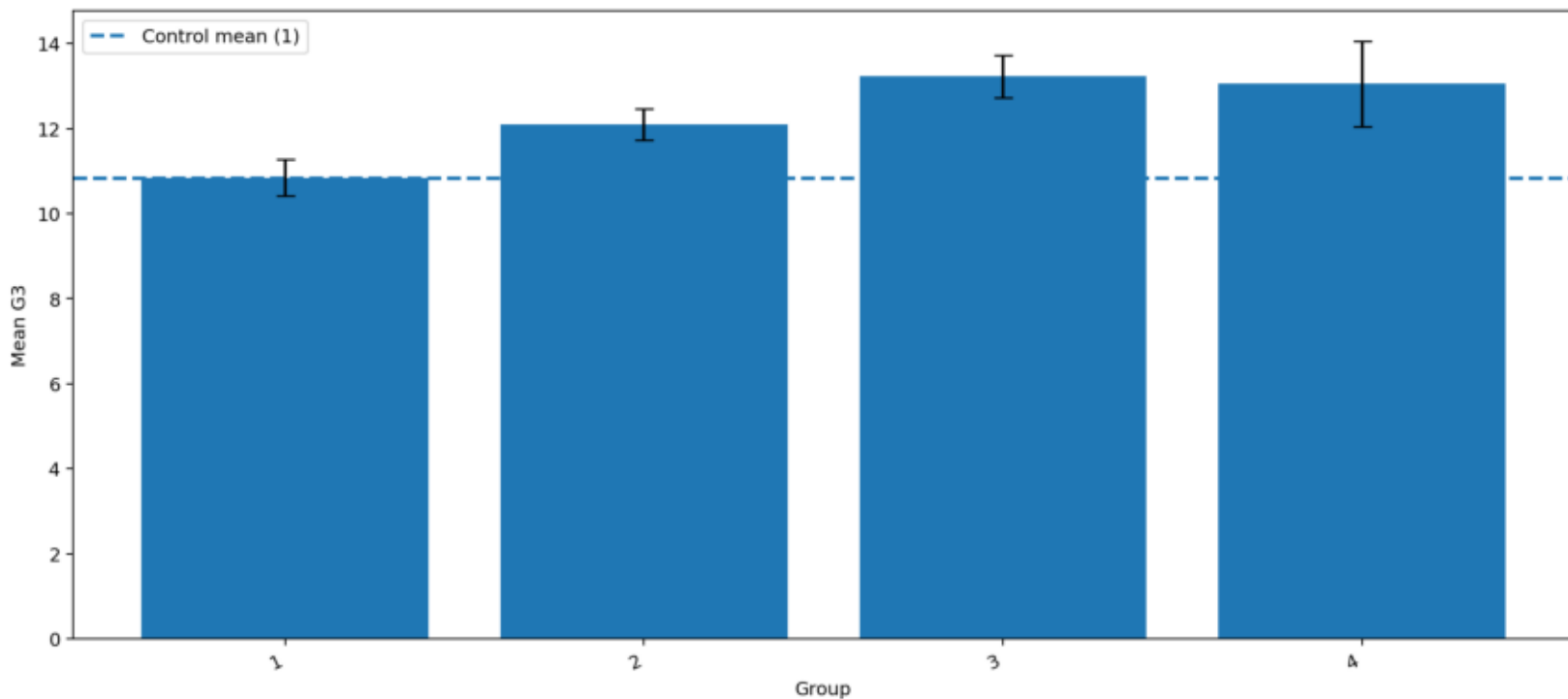
control_group	comparison_group	mean_control	mean_group	mean_difference_group_minus_control	test_statistic	adjusted_p_value	confidence_level	ci_lower	ci_upper	decision_alpha_0_05	method_note
1	2	10.84434	12.091803	1.247464	4.464497	2.793759e-05	0.95	0.582906	1.912021	Significant vs control	SciPy scipy.stats.dunnett two-sided single-step adjusted test
1	3	10.84434	13.226804	2.382465	6.219751	2.422060e-09	0.95	1.471438	3.293491	Significant vs control	SciPy scipy.stats.dunnett two-sided single-step adjusted test
1	4	10.84434	13.057143	2.212803	3.881220	3.435808e-04	0.95	0.856828	3.568779	Significant vs control	SciPy scipy.stats.dunnett two-sided single-step adjusted test

Assumption context:

context	statistic	p_value	note
Brown-Forsythe / median-centered Levene context	1.026312	0.380358	Dunnetts Test is an ANOVA-based post hoc test; check normality and variance assumptions before reporting the result.

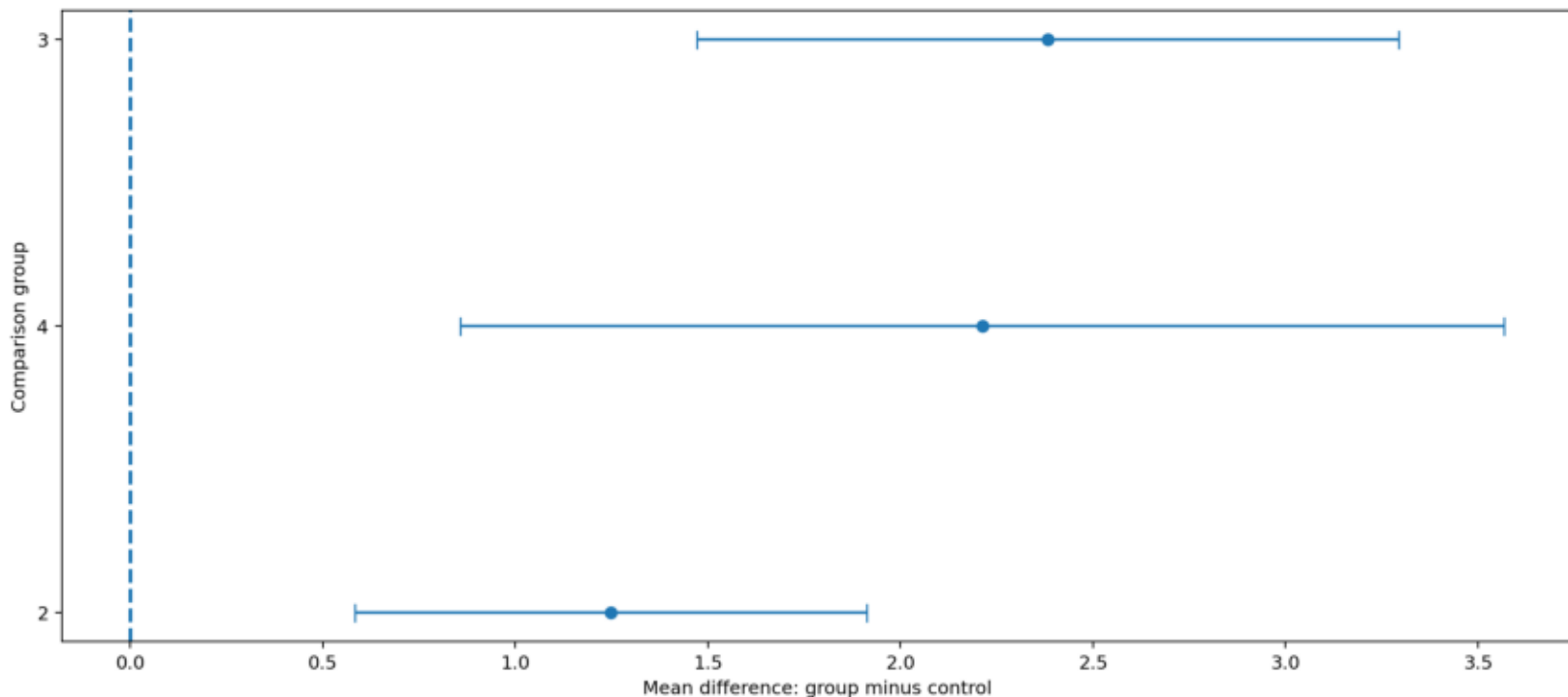
Dunnetts Test: Group Means vs Control

Each treatment group is compared only with the selected control group.



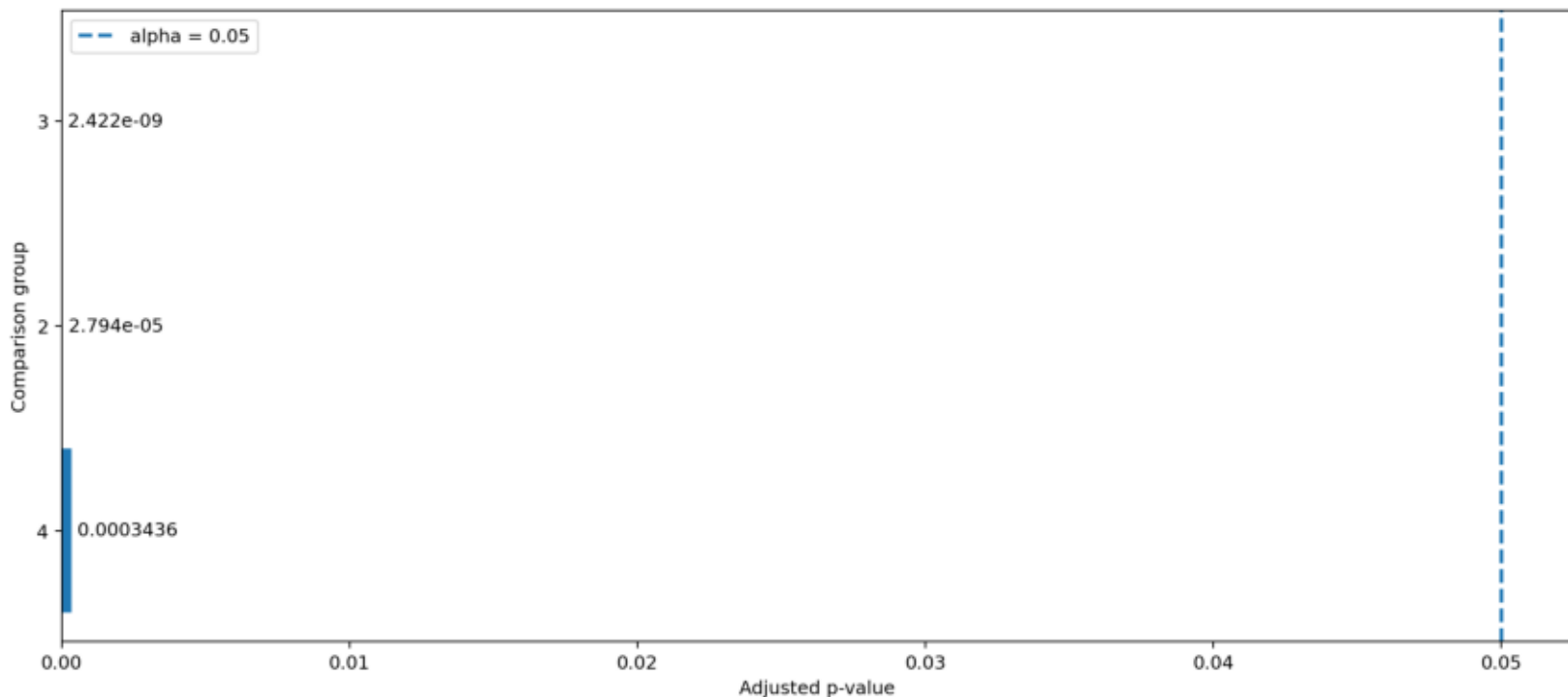
Dunnetts Test: Mean Differences with Adjusted CIs

A confidence interval crossing zero suggests the group is not different from the control.



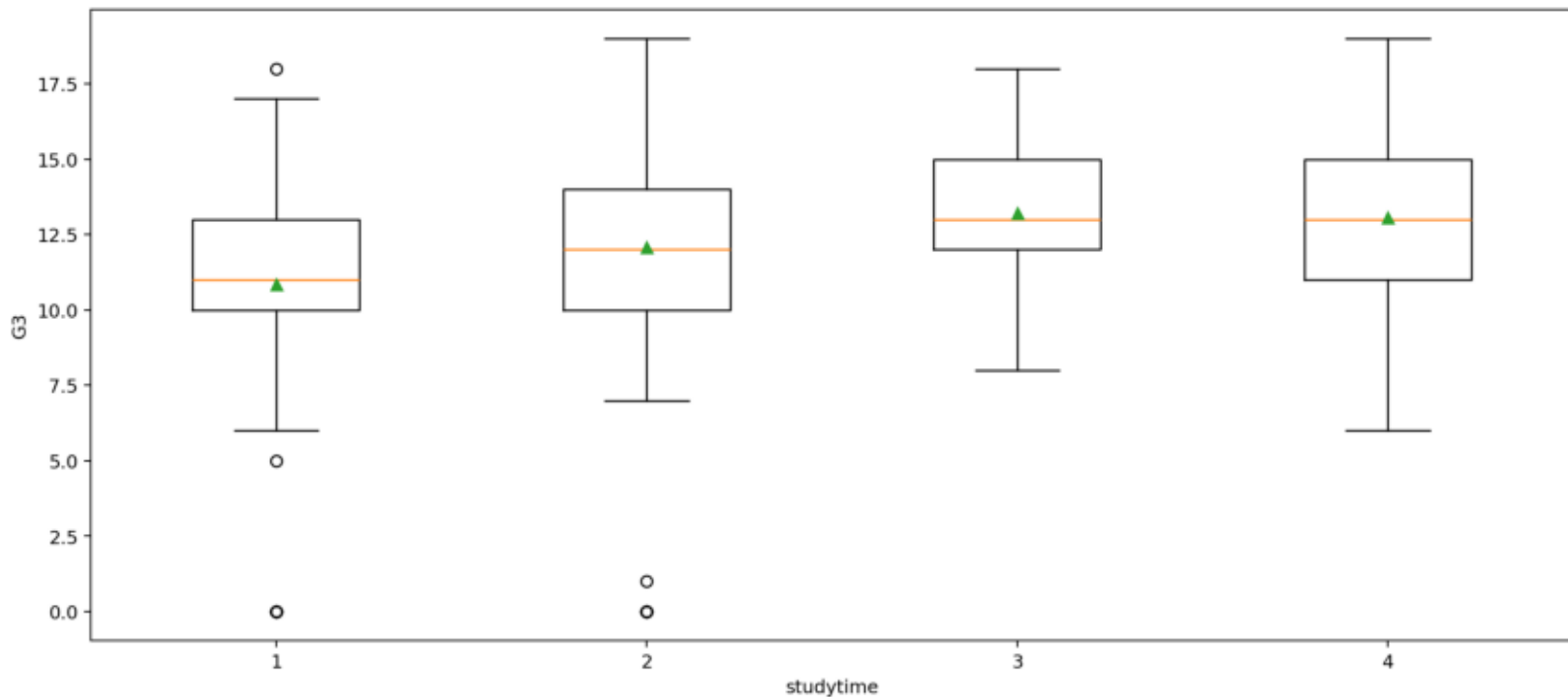
Dunnetts Test: Adjusted p-value Decision

Groups with adjusted p-values below alpha are significantly different from the control.



Dunnets Test: Distribution by Group

Boxplots show spread and outliers before comparing groups with control 1.



Dunnetts Test Context: Overall ANOVA Effect Size

Dunnetts Test is usually interpreted after checking the omnibus ANOVA context.

