

ONE-WAY ANOVA

Are $N_1, N_2, \dots, N_k > 30$?

Yes: Test robust to normality violations

NO - need to check normality

Are sample sizes all equal?

YES: normality is tenable

Is SKEW/s.e.Skewness ≤ 2 for all groups?

NO: normality not tenable

NO

Need to check homogeneity of variances. For Levene's test is $p > \alpha$?

NO

Test result may not be valid. Perform nonlinear transformation or nonparametric test.

YES

For ANOVA is $p > \alpha$?

YES

YES

NO

Result is stat. sig. Calculate and interpret effect size. If the number of groups is greater than two, conduct post-hoc test and interpret results. If the number of groups equals to 2, use sample means to interpret results.

Result is not stat. sig. Report result.