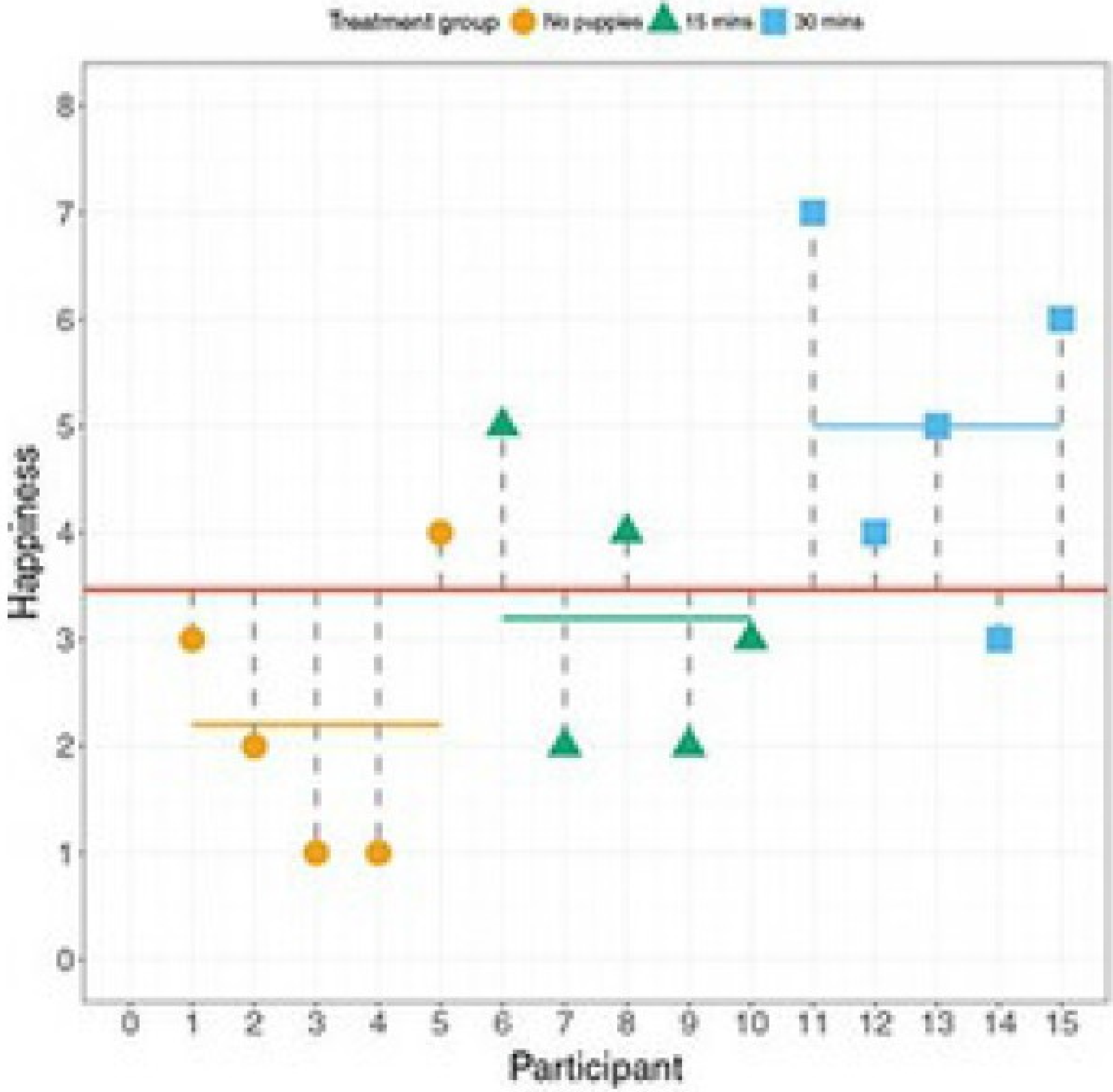
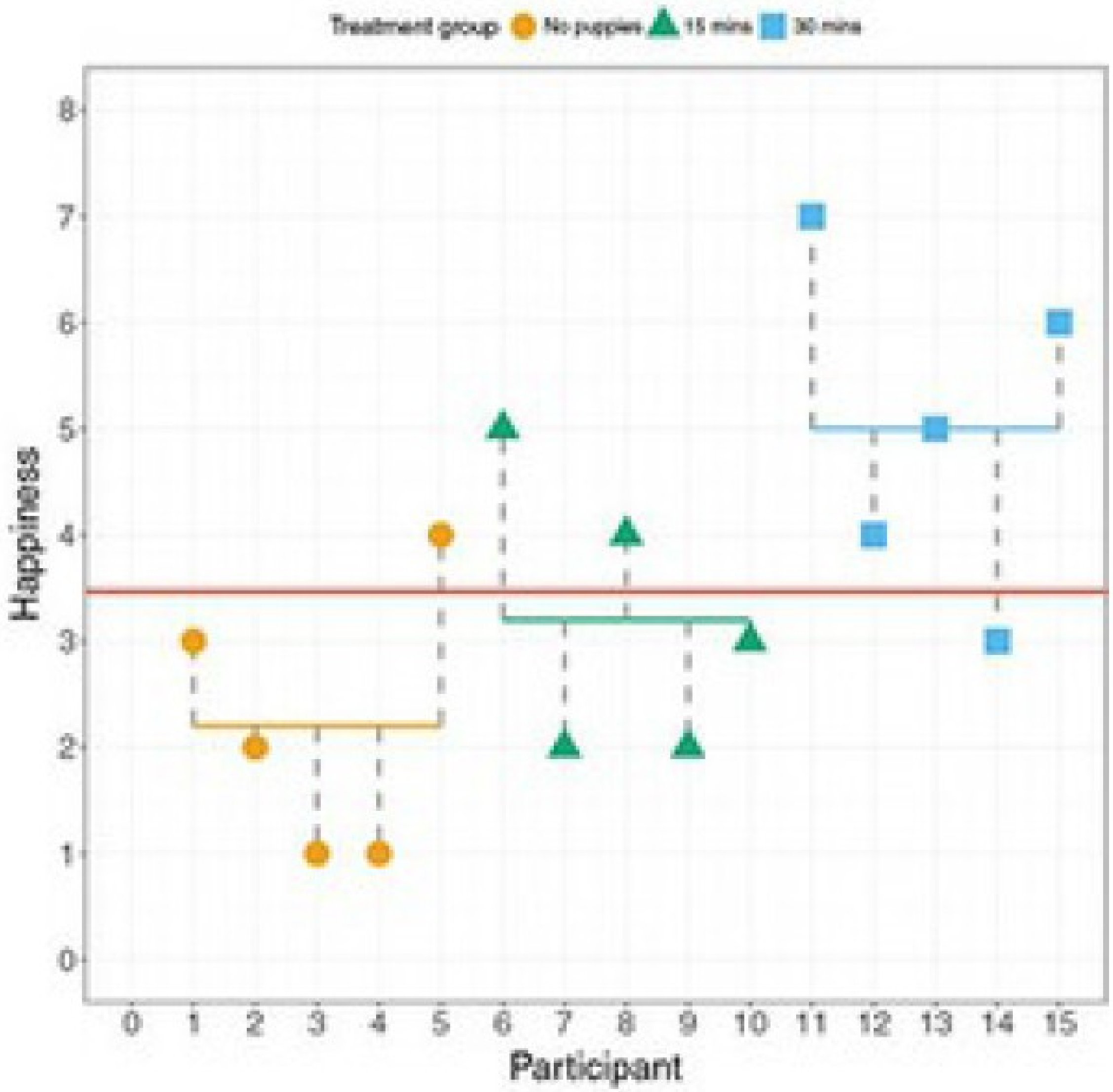
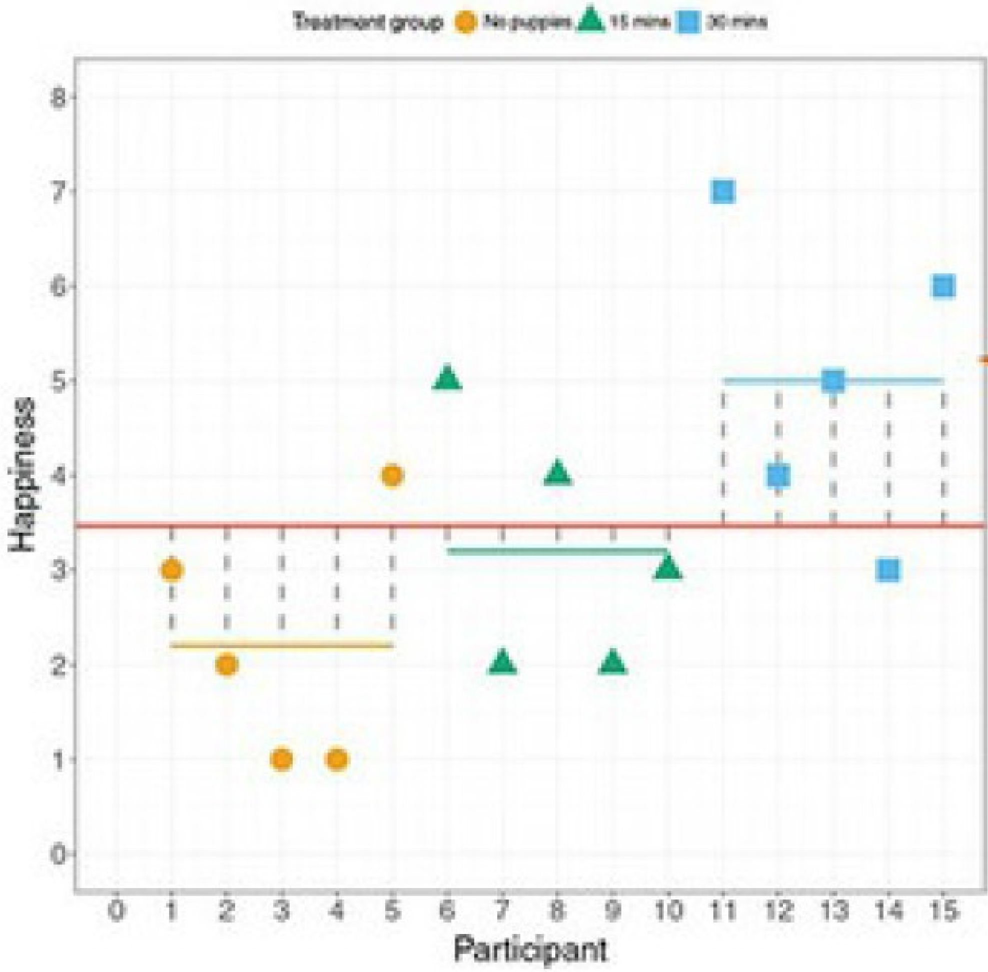
Součty čtverců

SS_T uses the differences between the observed data and the mean value of Y



SS_R uses the differences between the observed data and the model (group means)

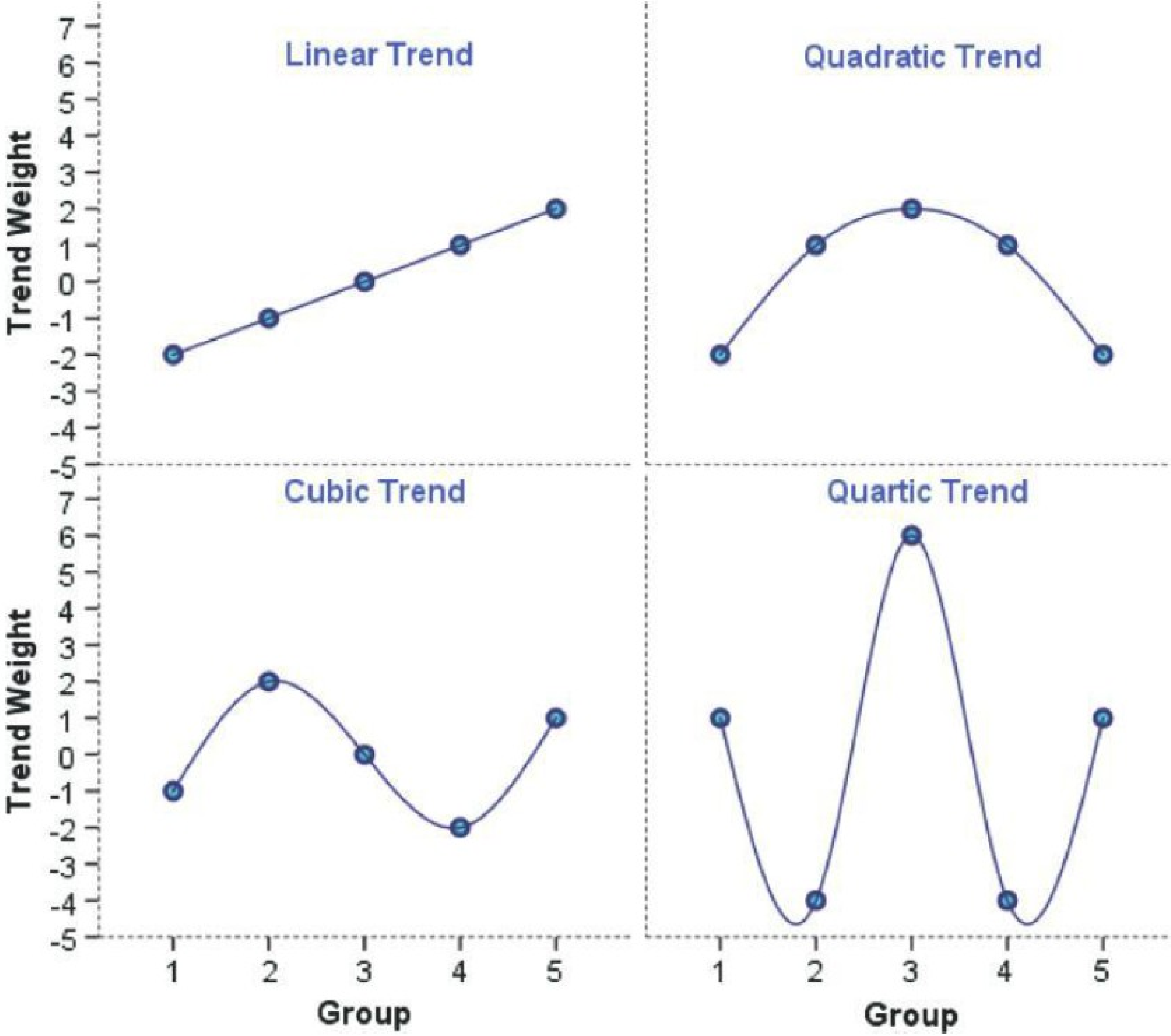




SS_M uses the differences between the mean value of Y and the model (group means)

Kontrasty

Name	Definition	Contrast	Three Groups			Four Groups		
Deviation (first)	Compares the effect of each category (except first) to the overall experimental effect	1	2	vs.	(1,2,3)	2	vs.	(1,2,3,4)
		2	3	vs.	(1,2,3)	3	vs.	(1,2,3,4)
		3				4	vs.	(1,2,3,4)
Deviation (last)	Compares the effect of each category (except last) to the overall experimental effect	1	1	vs.	(1,2,3)	1	vs.	(1,2,3,4)
		2	2	vs.	(1,2,3)	2	vs.	(1,2,3,4)
		3				3	vs.	(1,2,3,4)
Simple (first)	Each category is compared to the first category	1	1	vs.	2	1	vs.	2
		2	1	vs.	3	1	vs.	3
		3				1	vs.	4
Simple (last)	Each category is compared to the last category	1	1	vs.	3	1	vs.	4
		2	2	vs.	3	2	vs.	4
		3				3	vs.	4
Repeated	Each category (except the first) is compared to the previous category	1	1	vs.	2	1	vs.	2
		2	2	vs.	3	2	vs.	3
		3				3	vs.	4
Helmert	Each category (except the last) is compared to the mean effect of all subsequent categories	1	1	vs.	(2, 3)	1	vs.	(2, 3, 4)
		2	2	vs.	3	2	vs.	(3, 4)
		3				3	vs.	4
Difference (reverse Helmert)	Each category (except the first) is compared to the mean effect of all previous categories	1	3	vs.	(2, 1)	4	vs.	(3, 2, 1)
		2	2	vs.	1	3	vs.	(2, 1)
		3				2	vs.	1


Linear Trend
Quadratic Trend
Cubic Trend
Quartic Trend
Trend Weight
Trend Weight
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
1
2
3
4
5
Group
Group

Post-hoc testy

The choice of comparison procedure will depend on the exact situation you have and whether it is more important for you to keep strict control over the familywise error rate or to have greater statistical power. However, some general guidelines can be drawn (Toothaker, 1993). When you have equal sample sizes and you are confident that your population variances are similar then use REGWQ or Tukey as both have good power and tight control over the Type I error rate. Bonferroni is generally conservative, but if you want guaranteed control over the Type I error rate then this is the test to use. If sample sizes are slightly different then use Gabriel's procedure because it has greater power, but if sample sizes are very different use Hochberg's GT2. If there is any doubt that the population variances are equal then use the Games–Howell procedure because this generally seems to offer the best performance. I recommend running the Games–Howell procedure in addition to any other tests you might select because of the uncertainty of knowing whether the population variances are equivalent.

Although these general guidelines provide a convention to follow, be aware of the other procedures available and when they might be useful to use (e.g., Dunnett's test is the only multiple comparison that allows you to test means against a control mean).

Tabulky

One-way ANOVA

Table 6

Means, standard deviations, and d-values with confidence intervals

Variable	*M*	*SD*	1	2
1. High Dose	5.00	1.58		
2. Low Dose	3.20	1.30	1.24 [-0.17, 2.59]	
3. Placebo	2.20	1.30	1.93 [0.34, 3.44]	0.77 [-0.55, 2.04]

Note. *M* indicates mean. *SD* indicates standard deviation. *d*-values are estimates calculated using formulas 4.18 and 4.19 from Borenstein, Hedges, Higgins, & Rothstein (2009). *d*-values not calculated if unequal variances prevented pooling. Values in square brackets indicate the 95% confidence interval for each *d*-value The confidence interval is a plausible range of population *d*-values that could have caused the sample *d*-value (Cumming, 2014).

One-way ANOVA

Table 4

Fixed-Effects ANOVA results using libido as the criterion

Predictor	Sum of Squares	*df*	Mean Square	*F*	*p*	partial η^2	partial η^2 90% CI [LL, UL]
(Intercept)	180.27	1	180.27	91.66	.000		
dose	20.13	2	10.06	5.12	.025	.46	[.04, .62]
Error	23.60	12	1.97				

Note. LL and UL represent the lower-limit and upper-limit of the partial η^2 confidence interval, respectively.

N-way ANOVA

Table 8

Means and standard deviations for attractiveness as a function of a 2(gender) X 3(alcohol) design

	alcohol							
	2 Pints		4 Pints		None		Marginal	
gender	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Female	62.50	6.55	57.50	7.07	60.62	4.96	60.21	6.34
Male	66.88	12.52	35.62	10.84	66.88	10.33	56.46	18.50
Marginal	64.69	9.91	46.56	14.34	63.75	8.47		

Note. *M* and *SD* represent mean and standard deviation, respectively.

N-way ANOVA

Table 7

Fixed-Effects ANOVA results using attractiveness as the criterion

Predictor	Sum of Squares	*df*	Mean Square	*F*	*p*	partial η^2	partial η^2 90% CI [LL, UL]
(Intercept)	163333.33	1	163333.33	1967.03	.000		
gender	168.75	1	168.75	2.03	.161	.05	[.00, .18]
alcohol	3332.29	2	1666.14	20.07	.000	.49	[.28, .60]
gender x alcohol	1978.12	2	989.06	11.91	.000	.36	[.15, .49]
Error	3487.50	42	83.04				

Note. LL and UL represent the lower-limit and upper-limit of the partial η^2 confidence interval, respectively.

Fixed vs Random Effects

- viz http://web.pdx.edu/~newsomj/mlrclass/ho_randfixd.pdf