Results

Descriptives

Descriptives

N	
Missing	
Mean	
Median	
Standard deviation	
Minimum	
Maximum	

Relationships, Prediction, and Group Comparisons

Welcome to Statkat! This tool will help you to find an appropriate statistical method given the measurement level of your data. Make sure you have correctly defined the measurement levels of your variables on the Data tab. You can change the measurement level of a variable via the Setup button on the Data tab, or by double clicking on a column header of interest. You have selected the Relationships, Prediction, and Group Comparisons option. This is the place to be if you are interested in

- the relationship between two or more variables, or
- predicting one variable from other variables, or
- the difference between independent (unrelated) groups on a certain variable.

To get started, drop a variable in the box below Variable 1 / Dependent Variable, and one or more variables in the box below Variable 2 / Independent Variables. Our tool will then come up with a statistical method that may be appropriate for your data! In addition, you can drop one or more variables in the box below Control Variables. Control variables are variables that you are not particularly interested in, but which may be related to the dependent variable and possibly also to the independent variables. In experiments (with random assignment), control variables are often included to increase power. In observational studies, control variables are often included mainly to equate subjects on the control variables. This prevents the control variables from confounding the relationships between the independent variables and the dependent variable. If your research question does not make a clear distinction between an independent variable and a dependent variable, the decision of which variable to define as Variable 1/Dependent Variable and which as Variable 2/Independent Variables can be arbitrary. But doesn't this decision affect the recommended method? Well, in some cases it does affect the primary method recommendation, but if a simpler method can be performed by flipping the two variables, this is usually mentioned. It is then up to you which of the recommended methods you prefer. It is important to keep in mind here that none of the correlational statistical techniques can say anything about causality anyway (not even a method like regression analysis), so even if you do make a distinction between an independent and dependent variable, the statistical method will only say something about association, not causation. Note: Our advice is based on the measurement level of your data and on the number of variables entered. There can be details related to your data, task, or assignment that may render the advice moot. Always check the assumptions made by the statistical method before interpreting the results. We always try to come up with the least complicated method that might be applicable given your data. Keep in mind that there may be other, more advanced, methods that might be applicable as well.

Descriptives

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N	
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Descriptives

Descriptives

	Person	Dose
N	30	30
Missing	0	0
Mean	15.5	2.13
Median	15.5	2.00
Standard deviation	8.80	0.860
Minimum	1.00	1
Maximum	30.0	3
Skewness	0.00	-0.270
Std. error skewness	0.427	0.427
Kurtosis	-1.20	-1.62
Std. error kurtosis	0.833	0.833
Shapiro-Wilk W	0.957	0.770
Shapiro-Wilk p	0.266	<.001

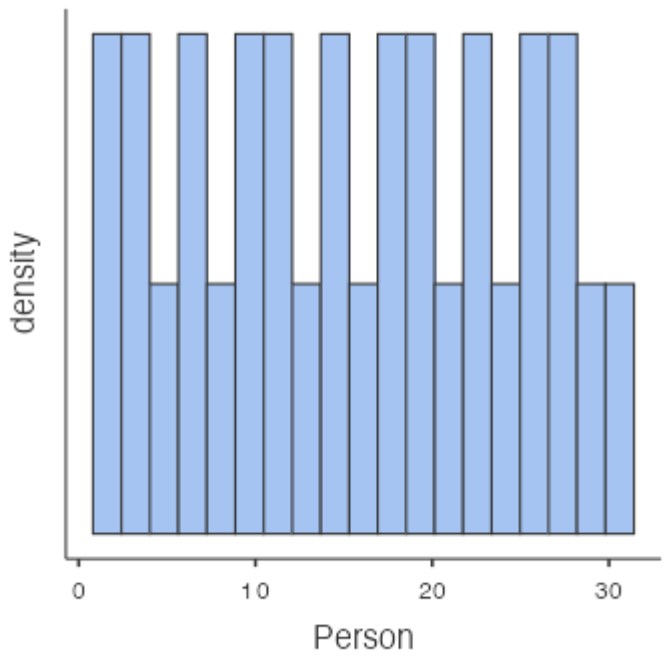
Frequencies

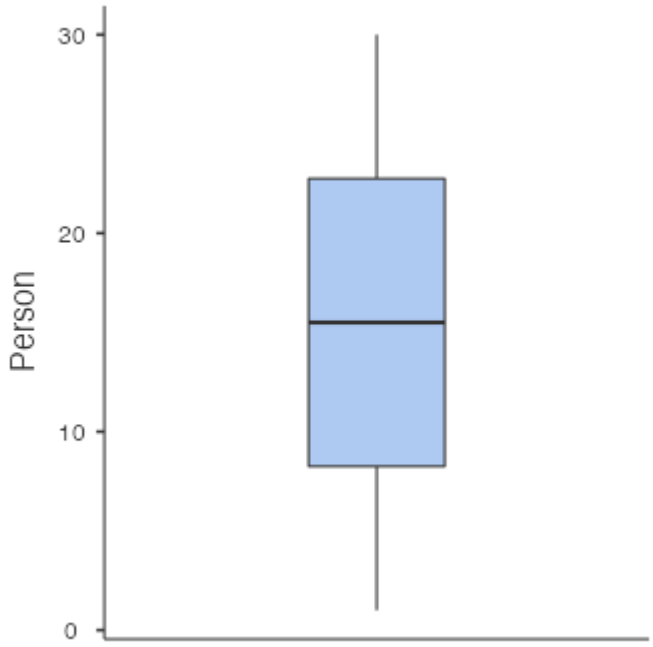
Frequencies of Dose

Levels	Counts	% of Total	Cumulative %
Control	9	30.0 %	30.0 %
15 mins	8	26.7 %	56.7 %
30 mins	13	43.3 %	100.0 %

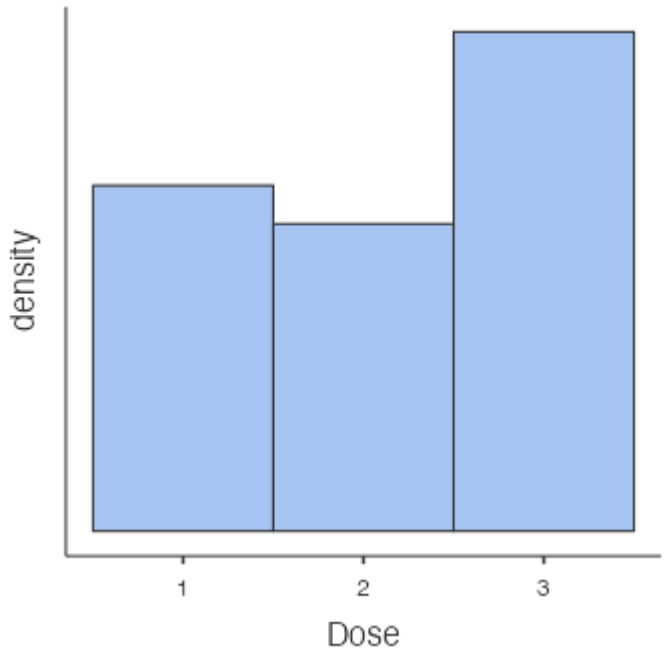
Plots

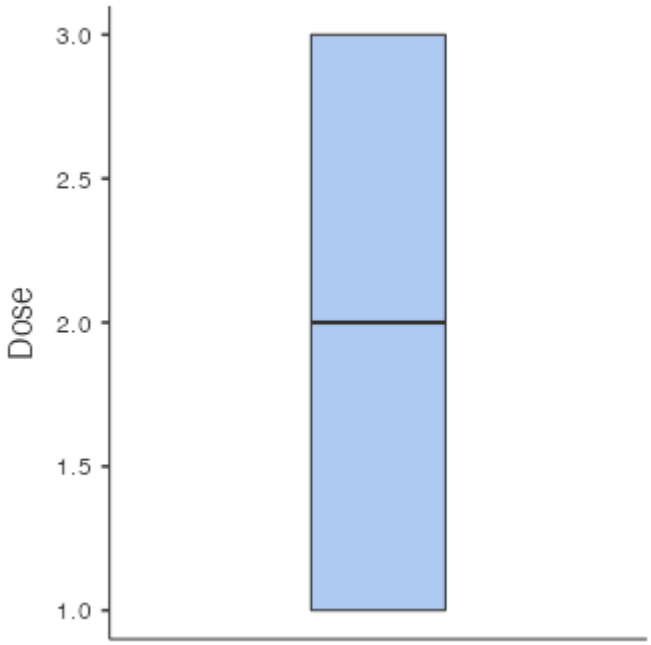
Person





Dose





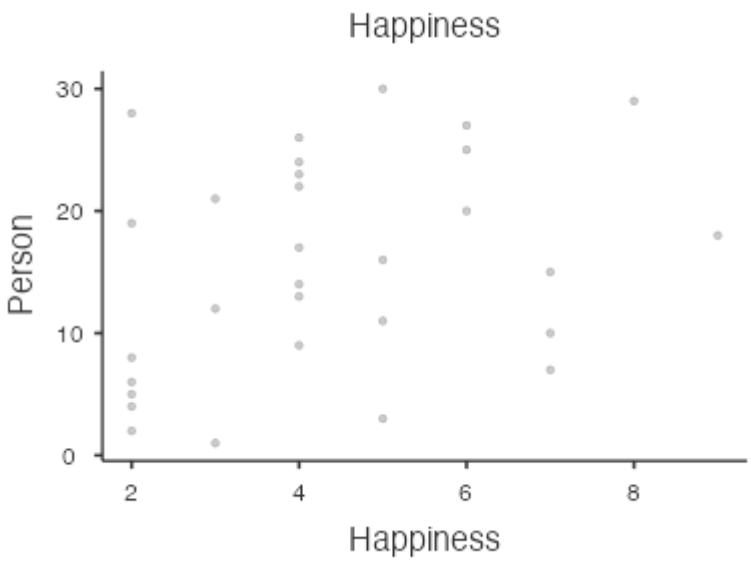
Relationships, Prediction, and Group Comparisons

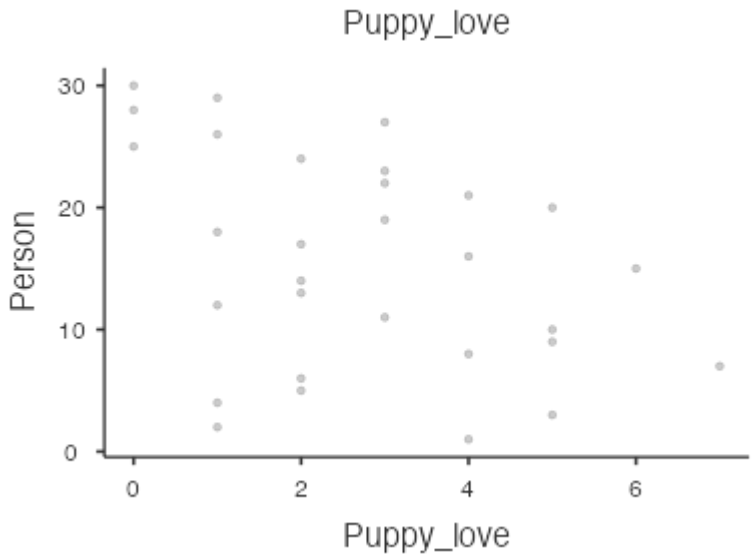
You have entered a numeric dependent variable, one or more independent variables, and one or more control variables. At least some of your independent variables are numeric. Hence, a linear regression analysis seems to be a good option for you! In order to run this analysis in jamovi, go to: Regression > Linear Regression

- Drop your dependent variable in the box below Dependent Variable
- Drop your independent variables and control variables in the box below Covariates. Independent/control variables of nominal or ordinal measurement level that consist of more than two groups should be transformed into code variables before they are included in the analysis. In jamovi, instead of transforming your categorical independent/control variables into code variables yourself, you can also put the untransformed categorical variables in the box below Factors. jamovi will then make the code variables for you 'behind the scenes'

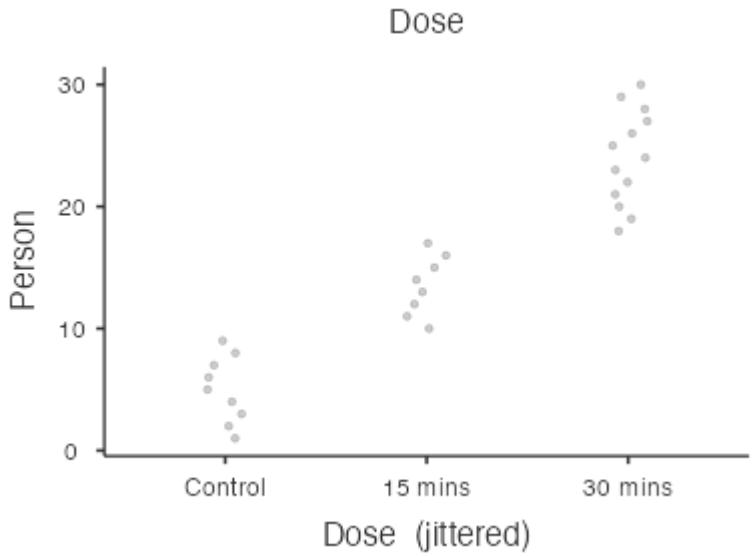
Click on the link to learn more about this method!

Scatter Plots of Bivariate Relationships - Dependent/Independent Variables





Scatter Plots of Bivariate Relationships - Dependent/Control Variables



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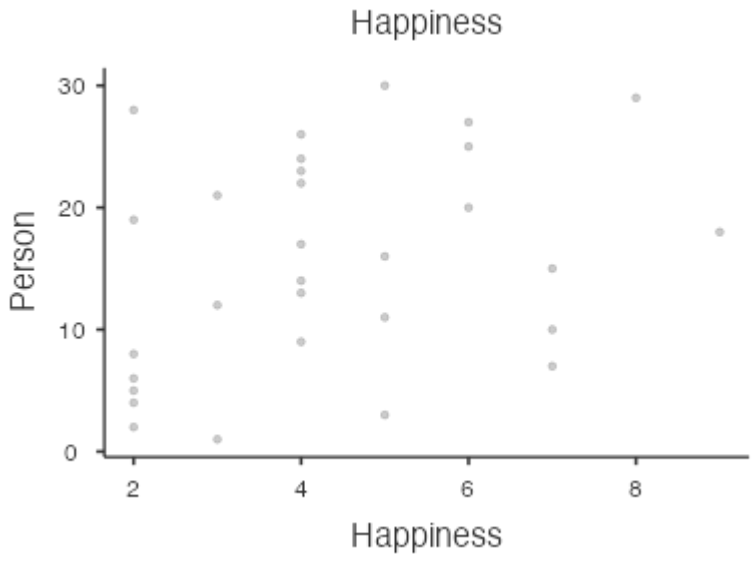
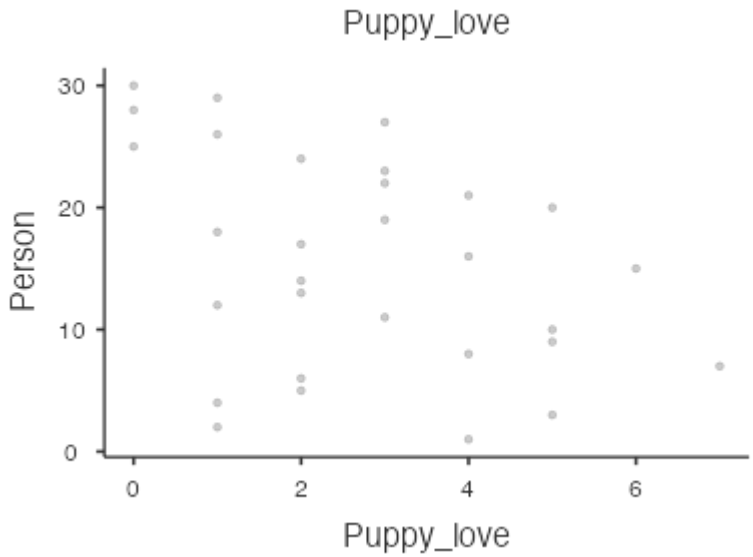
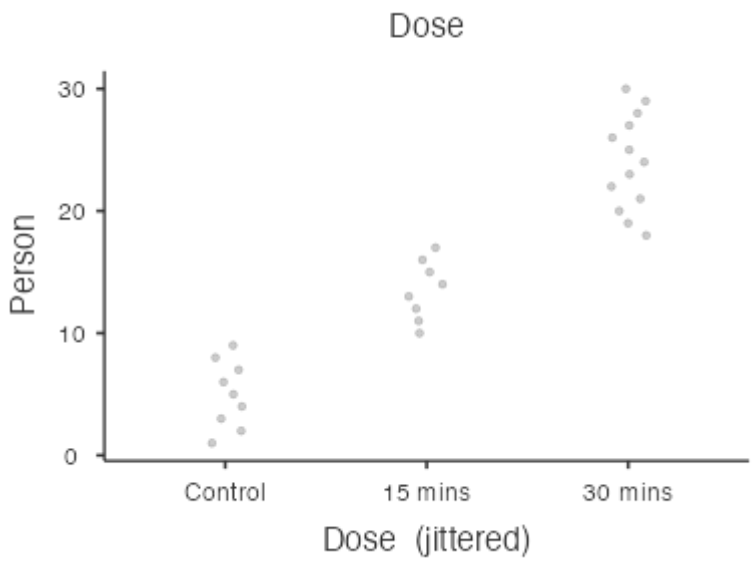
Scatter Plots of Bivariate Relationships - Dependent/Independent Variables





Scatter Plots of Bivariate Relationships - Dependent/Control Variables



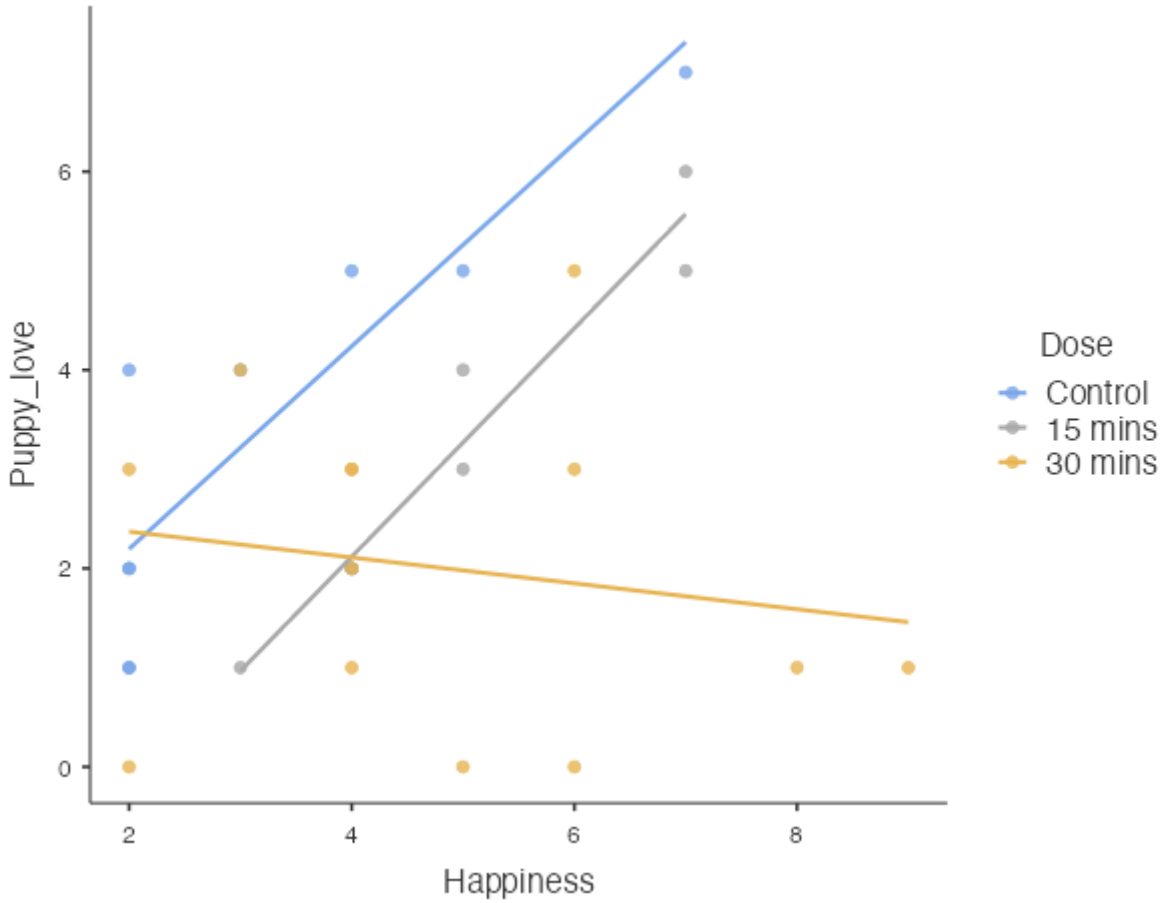
ANOVA

ANOVA - Puppy_love

	Sum of Squares	df	Mean Square	F	p
Dose	12.8	2	6.38	1.98	0.158
Residuals	87.1	27	3.23		

[3]

Scatterplot



ANCOVA

ANCOVA - Happiness

	Sum of Squares	df	Mean Square	F	p
Dose	25.2	2	12.59	4.14	0.027
Puppy_love	15.1	1	15.08	4.96	0.035
Residuals	79.0	26	3.04		

[3]

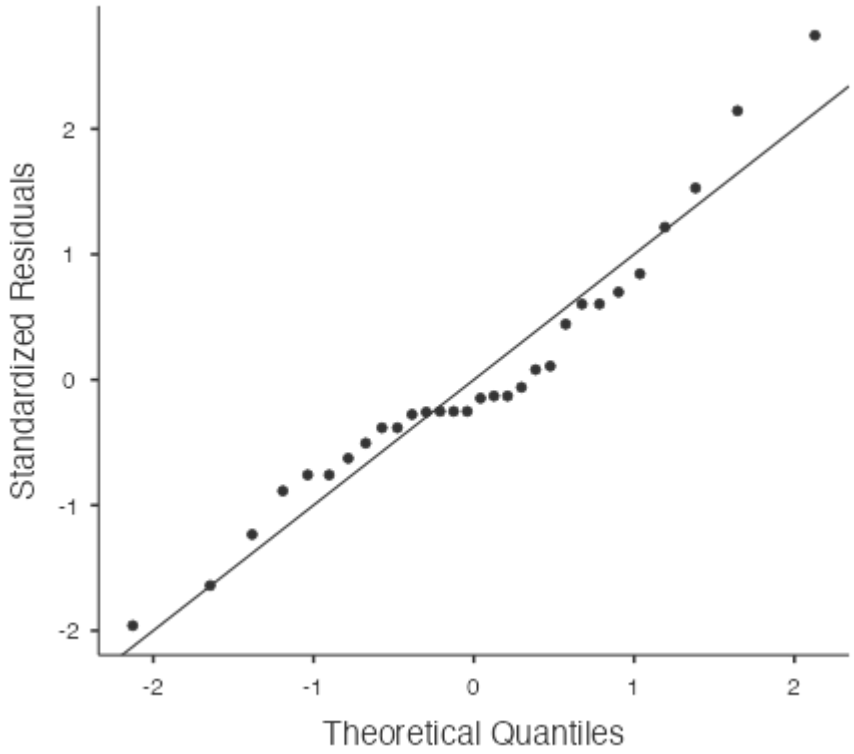
Assumption Checks

Homogeneity of Variances Test (Levene's)

F	df1	df2	p
4.62	2	27	0.019

[3]

Q-Q Plot



Post Hoc Tests

Post Hoc Comparisons - Dose

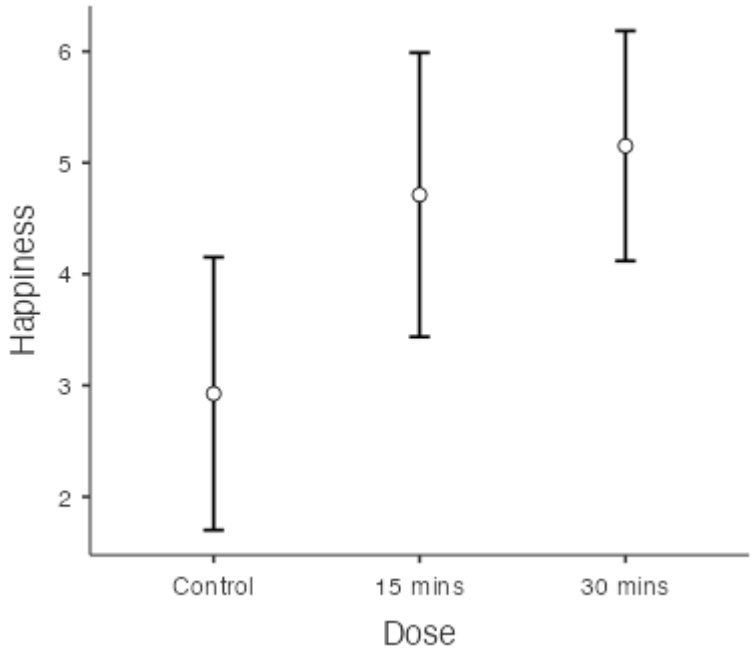
Comparison										95% Confidence Interval	
Dose		Dose	Mean Difference	SE	df	t	p_{tukey}	$p_{bonferroni}$	Cohen's d	Lower	Upper
Control	-	15 mins	-1.786	0.849	26.0	-2.102	0.109	0.136	-1.024	-2.07	0.0189
	-	30 mins	-2.225	0.803	26.0	-2.771	0.027	0.031	-1.276	-2.29	-0.2621
15 mins	-	30 mins	-0.439	0.811	26.0	-0.541	0.852	1.000	-0.252	-1.21	0.7071

Note. Comparisons are based on estimated marginal means

[4]

Estimated Marginal Means

Dose



[4]

ANCOVA

ANCOVA - Happiness

	Sum of Squares	df	Mean Square	F	p	η²	ω²
Dose	25.2	2	12.59	4.14	0.027	0.211	0.156
Puppy_love	15.1	1	15.08	4.96	0.035	0.126	0.098
Residuals	79.0	26	3.04				

[3]

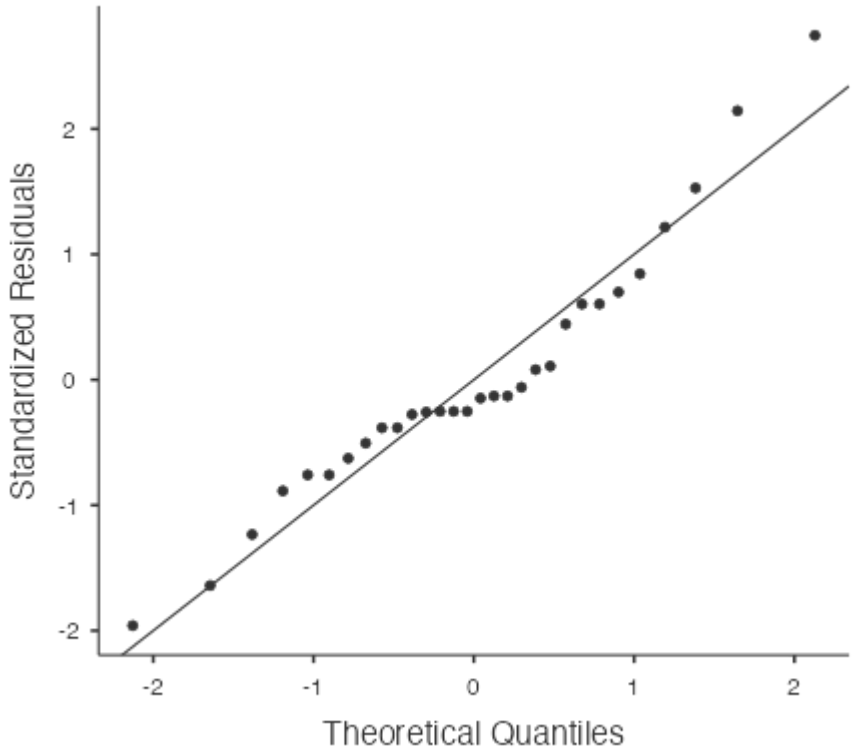
Assumption Checks

Homogeneity of Variances Test (Levene's)

F	df1	df2	p
4.62	2	27	0.019

[3]

Q-Q Plot



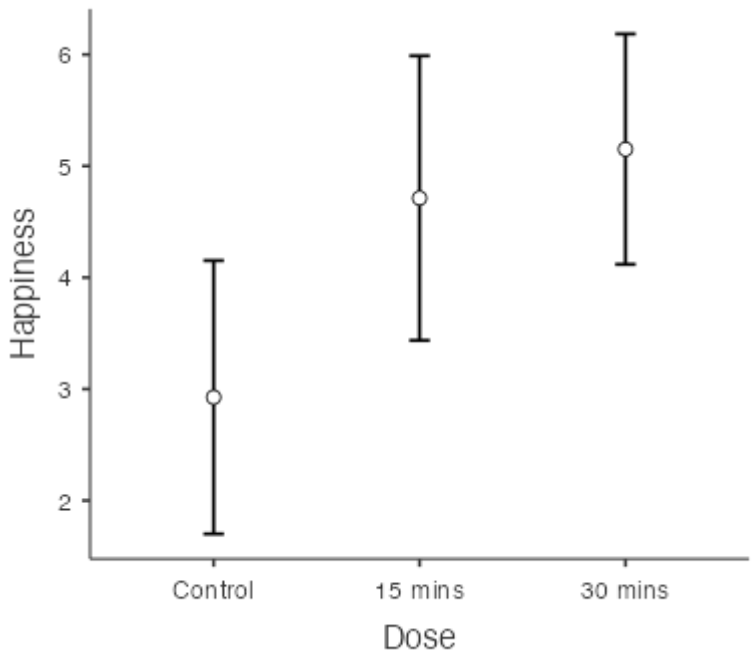
Contrasts

Contrasts - Dose

	Estimate	SE	t	p
15 mins - Control	1.79	0.849	2.10	0.045
30 mins - Control	2.22	0.803	2.77	0.010

Estimated Marginal Means

Dose



[4]

References

[1] The jamovi project (2021). *jamovi*. (Version 2.2) [Computer Software]. Retrieved from https://www.jamovi.org.

[2] R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.0) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2021-04-01).

[3] Fox, J., & Weisberg, S. (2020). *car: Companion to Applied Regression*. [R package]. Retrieved from https://cran.r-project.org/package=car.

[4] Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means*. [R package]. Retrieved from https://cran.r-project.org/package=emmeans.