# Results

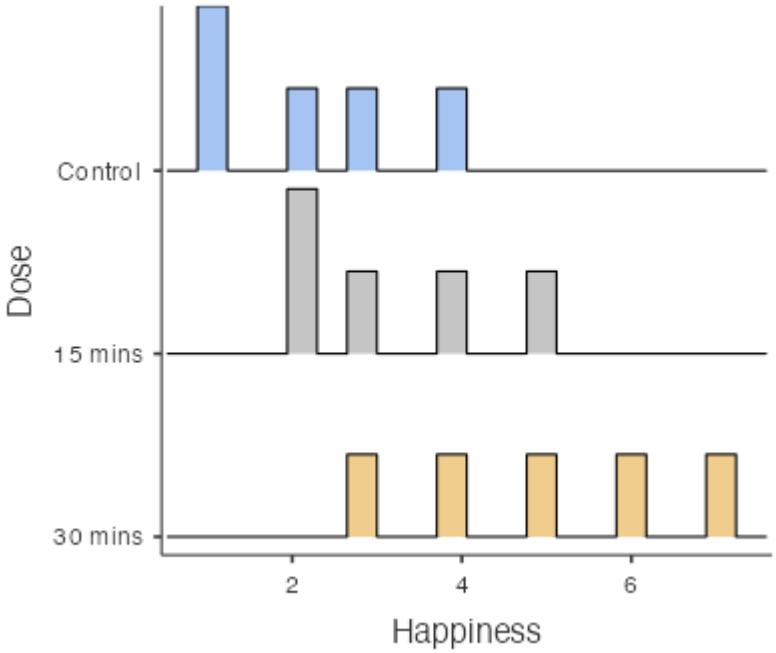
## Descriptives

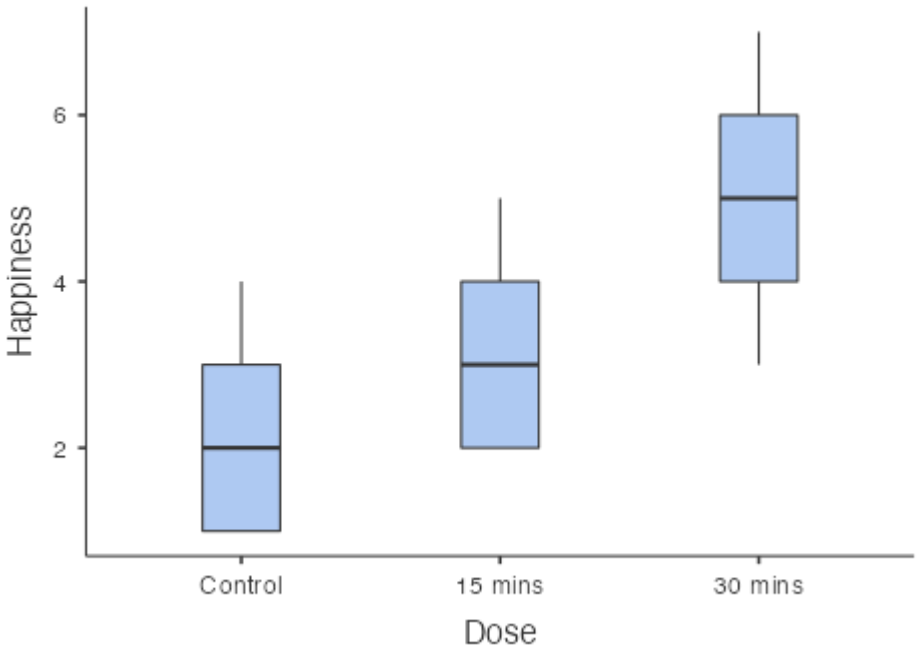
Descriptives

| | Dose | Happiness |
|---|---|---|
| N | Control | 5 |
| | 15 mins | 5 |
| | 30 mins | 5 |
| Missing | Control | 0 |
| | 15 mins | 0 |
| | 30 mins | 0 |
| Mean | Control | 2.20 |
| | 15 mins | 3.20 |
| | 30 mins | 5.00 |
| Median | Control | 2.00 |
| | 15 mins | 3.00 |
| | 30 mins | 5.00 |
| Standard deviation | Control | 1.30 |
| | 15 mins | 1.30 |
| | 30 mins | 1.58 |
| Minimum | Control | 1.00 |
| | 15 mins | 2.00 |
| | 30 mins | 3.00 |
| Maximum | Control | 4.00 |
| | 15 mins | 5.00 |
| | 30 mins | 7.00 |
| Skewness | Control | 0.541 |
| | 15 mins | 0.541 |
| | 30 mins | 0.00 |
| Std. error skewness | Control | 0.913 |
| | 15 mins | 0.913 |
| | 30 mins | 0.913 |
| Kurtosis | Control | -1.49 |
| | 15 mins | -1.49 |
| | 30 mins | -1.20 |
| Std. error kurtosis | Control | 2.00 |
| | 15 mins | 2.00 |
| | 30 mins | 2.00 |
| Shapiro-Wilk W | Control | 0.902 |
| | 15 mins | 0.902 |
| | 30 mins | 0.987 |
| Shapiro-Wilk p | Control | 0.421 |
| | 15 mins | 0.421 |
| | 30 mins | 0.967 |

## Plots

**Happiness**



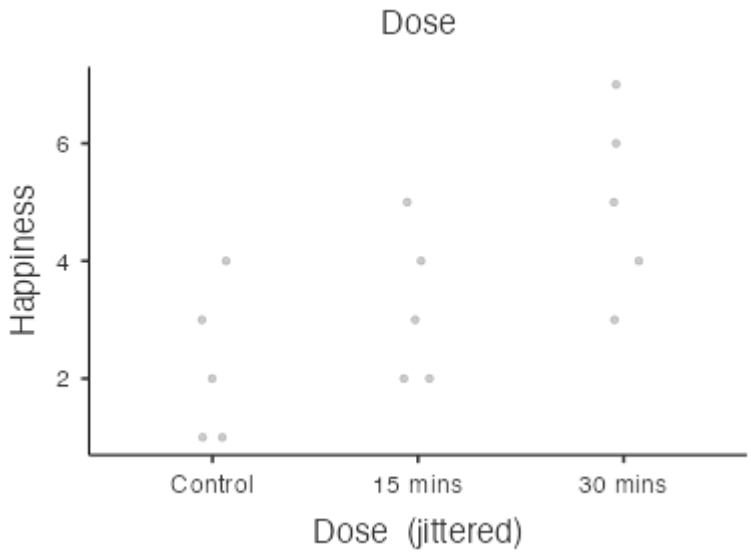

## Relationships, Prediction, and Group Comparisons

You have entered a numeric variable for Variable 1 / Dependent Variable and a nominal variable for Variable 2 / Independent Variables. Hence, a one way ANOVA, which is is a test for the difference between several population means, seems to be a good option for you! In order to run this analysis in jamovi, go to: ANOVA > ANOVA

- Drop your dependent (numeric) variable in the box below Dependent Variable and your independent (grouping) variable in the box below Fixed Factors

If the normality or homoscedasticity assumption is violated, you could use the non-parametric Kruskal-Wallis test. Click on the links to learn more about these tests!

### Scatter Plots of Bivariate Relationships - Dependent/Independent Variables




## One-Way ANOVA

One-Way ANOVA (Welch's)

| | F | df1 | df2 | p |
|---|---|---|---|---|

## ANOVA

ANOVA - Happiness

| | Sum of Squares | df | Mean Square | F | p | ω² |
|---|---|---|---|---|---|---|
| Dose | 20.1 | 2 | 10.07 | 5.12 | 0.025 | 0.354 |
| Residuals | 23.6 | 12 | 1.97 | | | |

**[3]**

### Assumption Checks

Homogeneity of Variances Test (Levene's)

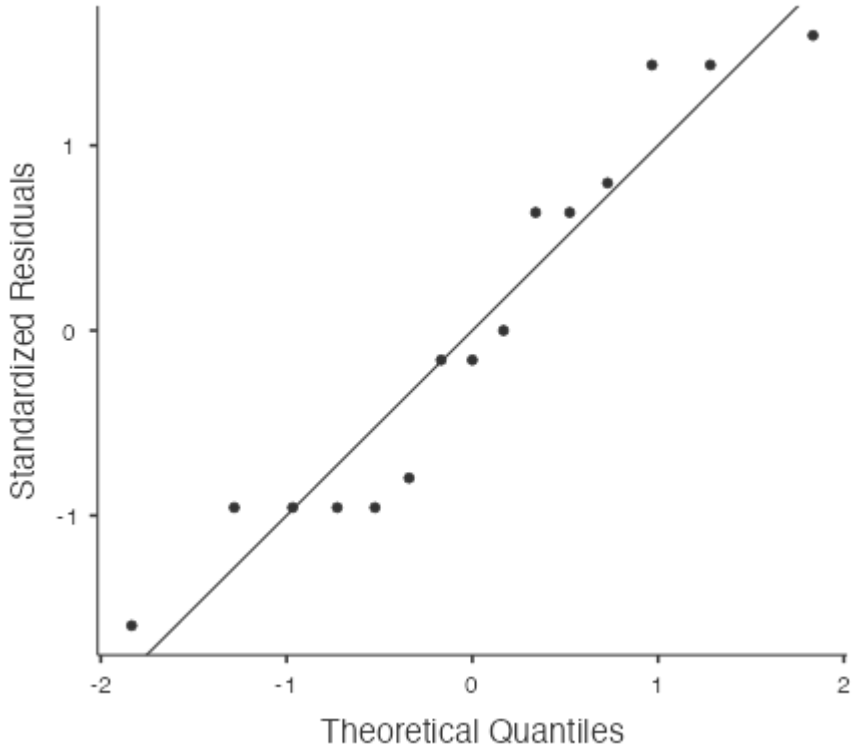
| F | df1 | df2 | p |
|---|---|---|---|
| 0.0917 | 2 | 12 | 0.913 |

**[3]**

Normality Test (Shapiro-Wilk)

| Statistic | p |
|---|---|
| 0.917 | 0.171 |

**Q-Q Plot**




## Post Hoc Tests

Post Hoc Comparisons - Dose

| Comparison | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dose | | Dose | Mean Difference | SE | df | t | $p_{tukey}$ | Cohen's d |
| Control | - | 15 mins | -1.00 | 0.887 | 12.0 | -1.13 | 0.516 | -0.713 |
| | - | 30 mins | -2.80 | 0.887 | 12.0 | -3.16 | 0.021 | -1.997 |
| 15 mins | - | 30 mins | -1.80 | 0.887 | 12.0 | -2.03 | 0.147 | -1.284 |

*Note.* Comparisons are based on estimated marginal means

**[4]**

# One-Way ANOVA

One-Way ANOVA (Welch's)

| | F | df1 | df2 | p |
|---|---|---|---|---|
| Happiness | 4.32 | 2 | 7.94 | 0.054 |

Group Descriptives

| | Dose | N | Mean | SD | SE |
|---|---|---|---|---|---|
| Happiness | Control | 5 | 2.20 | 1.30 | 0.583 |
| | 15 mins | 5 | 3.20 | 1.30 | 0.583 |
| | 30 mins | 5 | 5.00 | 1.58 | 0.707 |

## Assumption Checks

Normality Test (Shapiro-Wilk)

| | W | p |
|---|---|---|
| Happiness | 0.917 | 0.171 |

*Note.* A low p-value suggests a violation of the assumption of normality

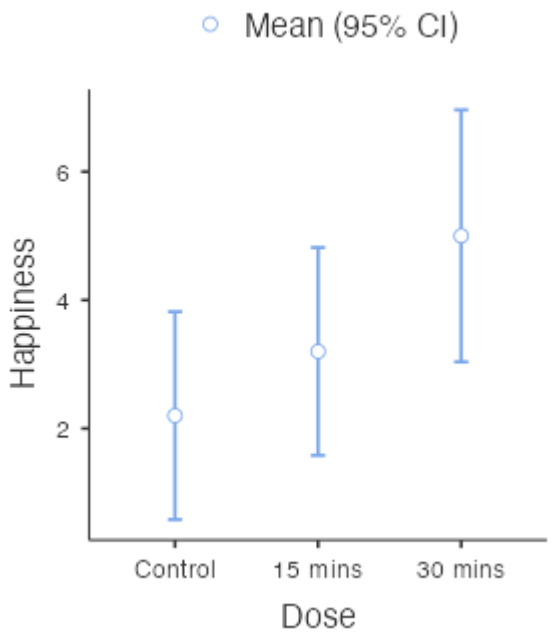
Homogeneity of Variances Test (Levene's)

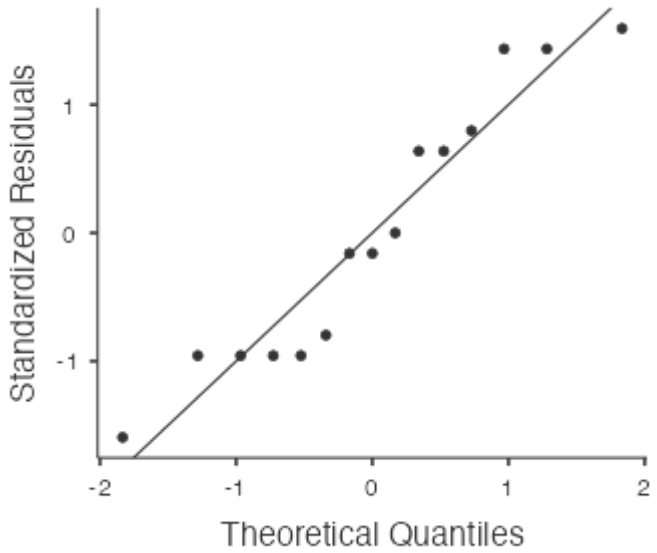
| | F | df1 | df2 | p |
|---|---|---|---|---|
| Happiness | 0.0917 | 2 | 12 | 0.913 |

**[3]**

## Plots

### Happiness




## Post Hoc Tests

Tukey Post-Hoc Test – Happiness

| | | Control | 15 mins | 30 mins |
|---|---|---|---|---|
| Control | Mean difference | — | -1.00 | -2.80 |
| | p-value | — | 0.516 | 0.021 |
| 15 mins | Mean difference | | — | -1.80 |
| | p-value | | — | 0.147 |
| 30 mins | Mean difference | | | — |
| | p-value | | | — |

## Repeated Measures ANOVA

Within Subjects Effects

| | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|
| RM Factor 1 | . | . | . | . | . |
| Residual | . | . | . | . | . |

*Note.* Type 3 Sums of Squares

**[5]**

Between Subjects Effects

| | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|
| Residual | . | . | . | . | . |

*Note.* Type 3 Sums of Squares

## ANOVA

ANOVA - Happiness

| | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|
| Dose | 20.1 | 2 | 10.07 | 5.12 | 0.025 |
| Residuals | 23.6 | 12 | 1.97 | | |

**[3]**

### Assumption Checks

Homogeneity of Variances Test (Levene's)

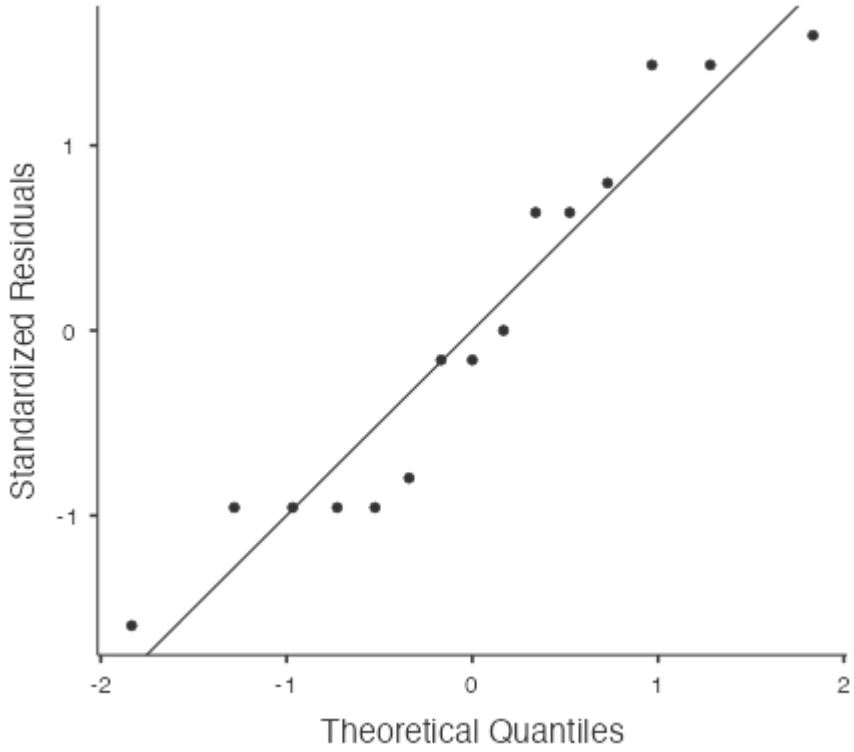
| F | df1 | df2 | p |
|---|---|---|---|
| 0.0917 | 2 | 12 | 0.913 |

**[3]**

Normality Test (Shapiro-Wilk)

| Statistic | p |
|---|---|
| 0.917 | 0.171 |

**Q-Q Plot**




## Post Hoc Tests

Post Hoc Comparisons - Dose

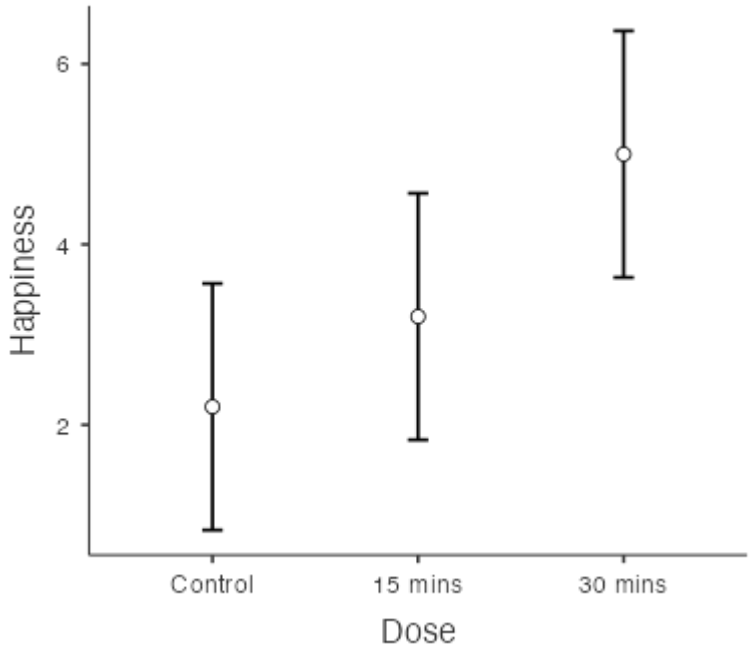
| Comparison | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dose | | Dose | Mean Difference | SE | df | t | $p_{tukey}$ |
| Control | - | 15 mins | -1.00 | 0.887 | 12.0 | -1.13 | 0.516 |
| | - | 30 mins | -2.80 | 0.887 | 12.0 | -3.16 | 0.021 |
| 15 mins | - | 30 mins | -1.80 | 0.887 | 12.0 | -2.03 | 0.147 |

*Note.* Comparisons are based on estimated marginal means

**[4]**

## Estimated Marginal Means

**Dose**




**[4]**

## Robust ANOVA

Robust ANOVA

| | F | p |
|---|---|---|
| Dose | 3.00 | 0.160 |

*Note.* Method of trimmed means, trim level 0.2

### Post Hoc Tests

Post Hoc Tests - Dose

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| | | psi-hat | p | Lower | Upper |
| Control | 15 mins | -1.00 | 0.435 | -5.32 | 3.32 |
| Control | 30 mins | -3.00 | 0.181 | -7.32 | 1.32 |
| 15 mins | 30 mins | -2.00 | 0.317 | -6.32 | 2.32 |

## References

**[1]** The jamovi project (2022). *jamovi*. (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org.

**[2]** R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.1) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

**[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.

**[5]** Singmann, H. (2018). *afex: Analysis of Factorial Experiments*. [R package]. Retrieved from https://cran.r-project.org/package=afex.