Results

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.

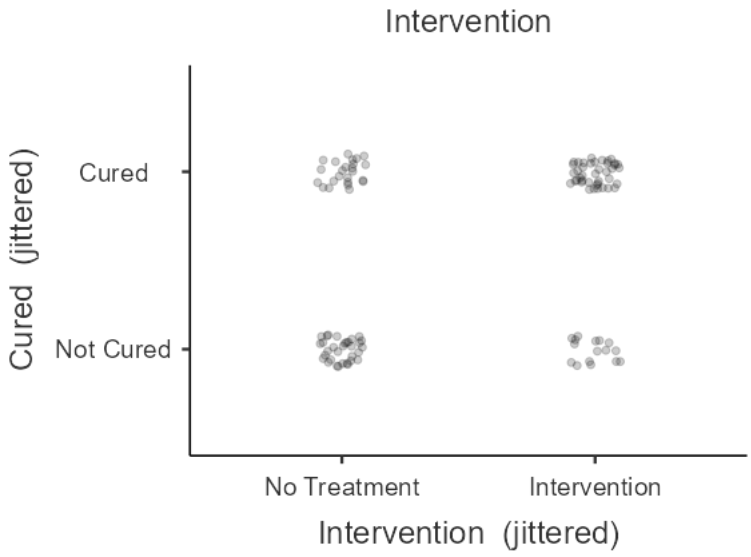
Relationships, Prediction, and Group Comparisons

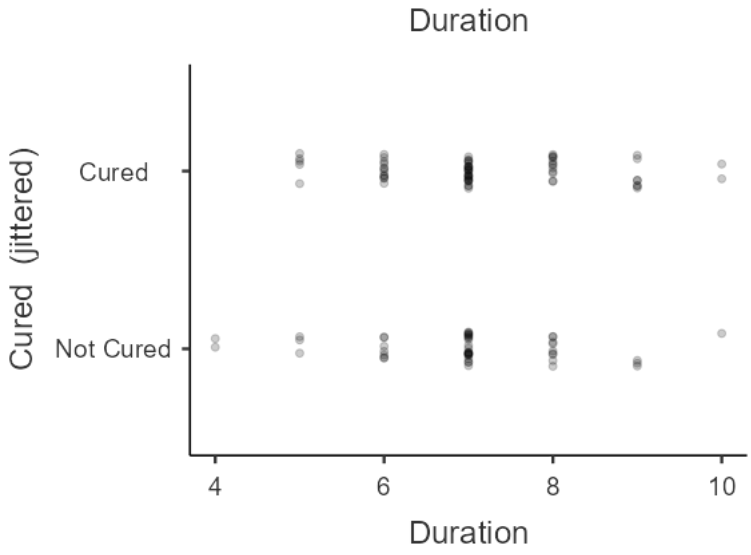
You have entered a dichotomous dependent variable and several independent variables. Hence, logistic regression analysis seems to be a good option for you! In order to run this analysis in jamovi, go to: Regression > 2 Outcomes - Binomial

- Drop your dependent variable in the box below Dependent Variable
- Drop your independent variables in the box below Covariates. Independent 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. Independent variables of nominal or ordinal measurement level that consist of two groups can be transformed into code variables, but they don't need to be, as long as numbers are used to indicate group membership, not letters (these dichotomous variables actually are code variables already, but you may like to change the coding). In jamovi, instead of transforming your categorical independent variables into code variables yourself, you can also put the untransformed categorical independent 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





Descriptives

Descriptives

	Cured	Intervention
N	113	113
Missing	0	0
Minimum	0	0
Maximum	1	1

Frequencies

Frequencies of Cured

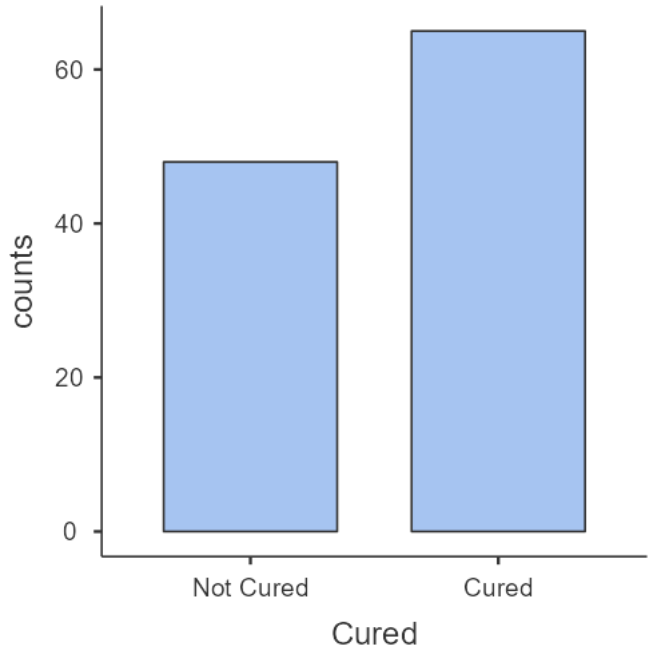
Cured	Counts	% of Total	Cumulative %
Not Cured	48	42.5 %	42.5 %
Cured	65	57.5 %	100.0 %

Frequencies of Intervention

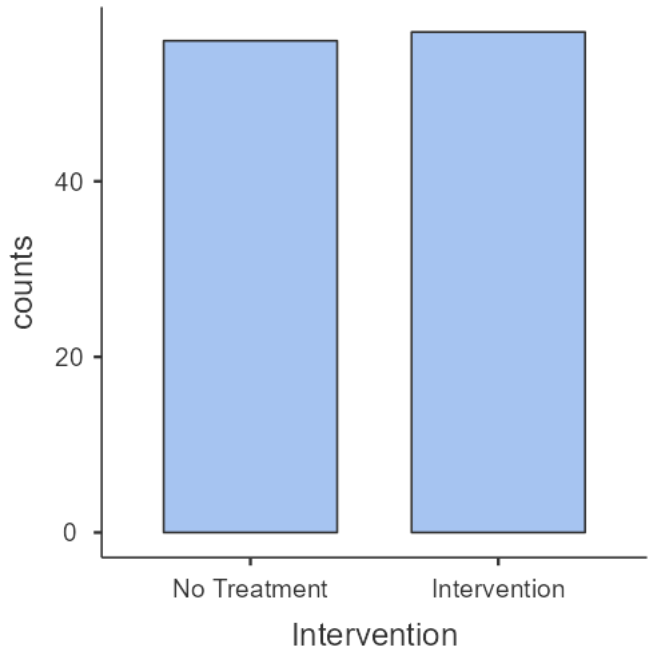
Intervention	Counts	% of Total	Cumulative %
No Treatment	56	49.6 %	49.6 %
Intervention	57	50.4 %	100.0 %

Plots

Cured



Intervention



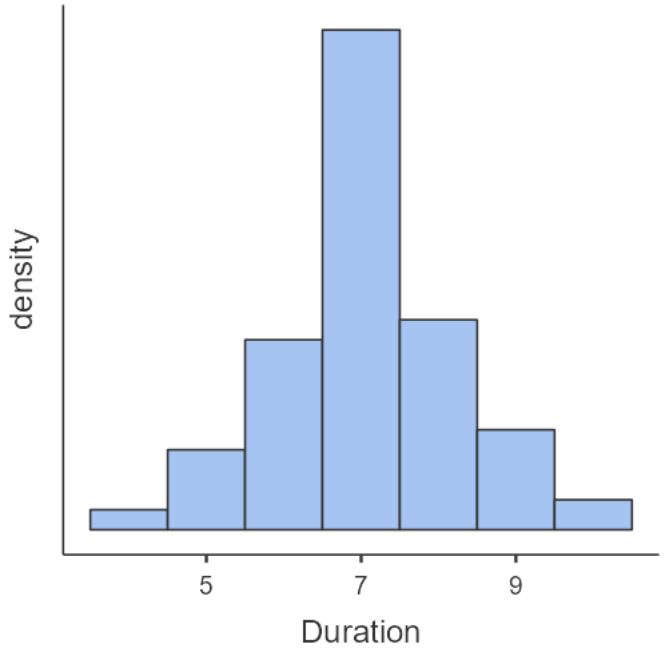
Descriptives

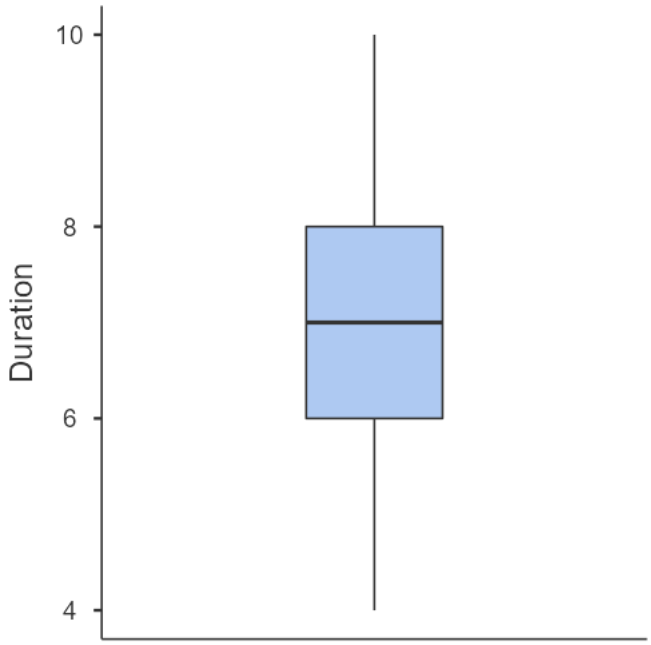
Descriptives

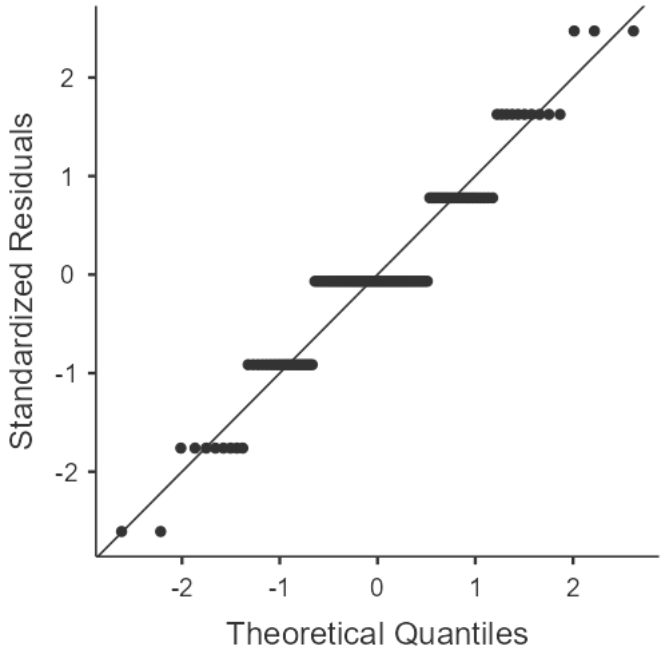
	Duration
N	113
Missing	0
Mean	7.08
Median	7.00
Standard deviation	1.18
Minimum	4.00
Maximum	10.0
Skewness	0.0419
Std. error skewness	0.227
Kurtosis	0.424
Std. error kurtosis	0.451
Shapiro-Wilk W	0.925
Shapiro-Wilk p	< .001

Plots

Duration







Binomial Logistic Regression

Model Fit Measures

Model	Deviance	AIC	R^2_{McF}
1	151	159	0.0201

Model Coefficients - Cured

Predictor	Estimate	SE	Z	p
Intercept	17.5	16.4	1.07	0.286
Duration	-97.2	69.6	-1.40	0.163
ln_Duration	167.2	119.3	1.40	0.161
Duration ✻ ln_Duration	24.8	17.8	1.40	0.163

Note. Estimates represent the log odds of "Cured = Cured" vs. "Cured = Not Cured"

Binomial Logistic Regression

Model Fit Measures

						Overall Model Test		
Model	Deviance	AIC	R^2_{McF}	R^2_{CS}	R^2_N	χ^2	df	p
1	144	148	0.0644	0.0841	0.113	9.93	1	0.002

Omnibus Likelihood Ratio Tests

Predictor	χ^2	df	p
Intervention	9.93	1	0.002

[3]

Model Coefficients - Cured

		95% Confidence Interval						95% Confidence Interval	
Predictor	Estimate	Lower	Upper	SE	Z	p	Odds ratio	Lower	Upper
Intercept	-0.288	-0.817	0.242	0.270	-1.07	0.287	0.750	0.442	1.27
Intervention:									
Intervention – No Treatment	1.229	0.445	2.012	0.400	3.07	0.002	3.417	1.561	7.48

Note. Estimates represent the log odds of "Cured = Cured" vs. "Cured = Not Cured"

Assumption Checks

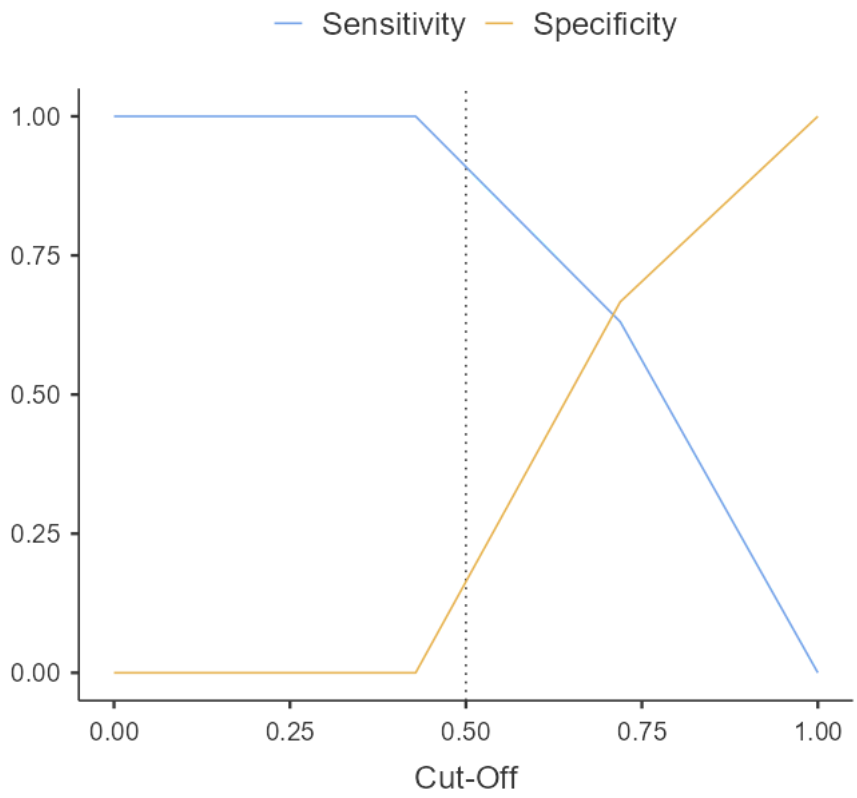
Collinearity Statistics

	VIF	Tolerance
Intervention	1.00	1.00

[3]

Prediction

Cut-Off Plot

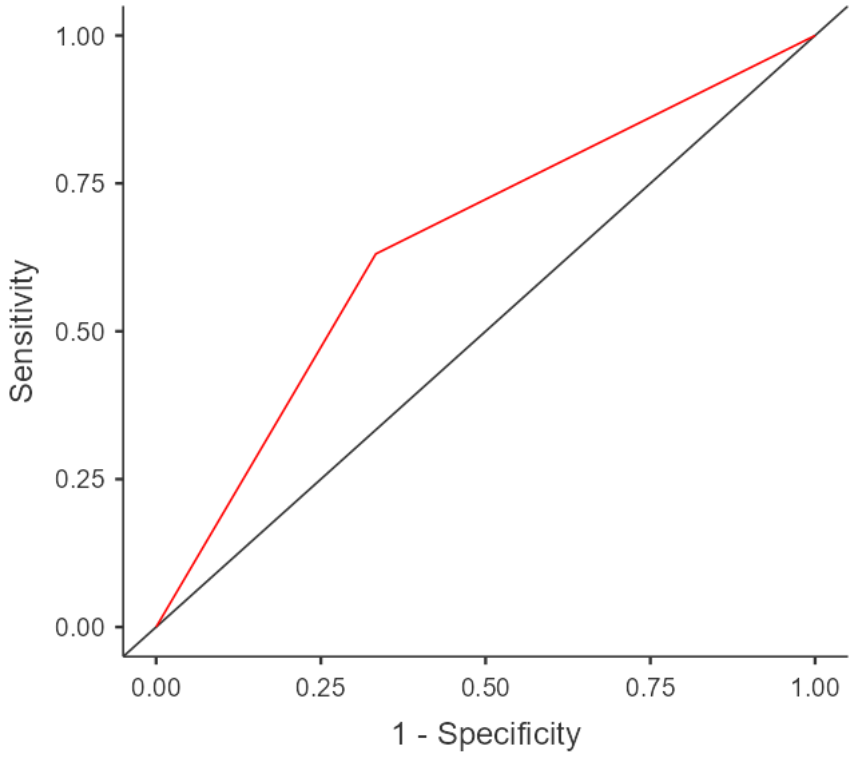


Predictive Measures

Accuracy	Specificity	Sensitivity	AUC
0.646	0.667	0.631	0.649

Note. The cut-off value is set to 0.5

ROC Curve



[4]

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] Sing, T., Sander, O., Beerenwinkel, N., & Lengauer, T. (2015). *ROCR: Visualizing the Performance of Scoring Classifiers*. [R package]. Retrieved from https://cran.r-project.org/package=ROCR.