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.

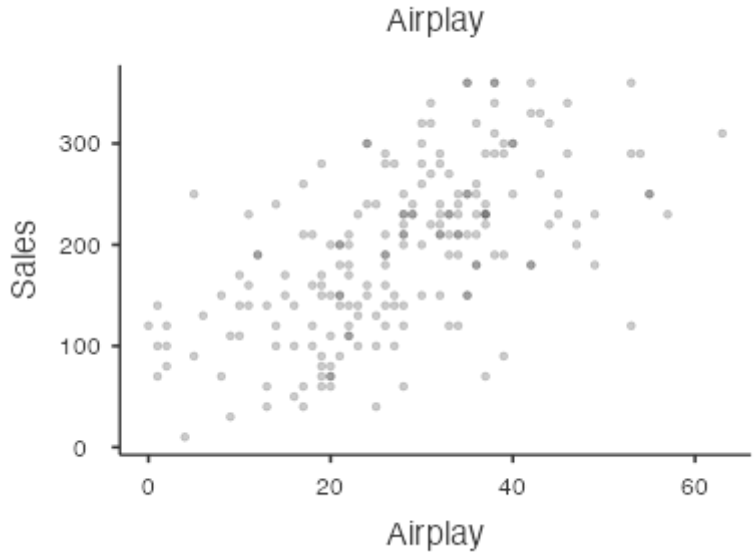
Relationships, Prediction, and Group Comparisons

You have entered a numeric variable for Variable 1 / Dependent Variable and a numeric variable for Variable 2 / Independent Variables. Hence, the Pearson correlation coefficient, which is a measure for the strength of the linear relationship between two variables, seems to be a good option for you! In order to run this analysis in jamovi, go to: Regression > Correlation Matrix

- Drop your two variables in the white box at the right
- Under Correlation Coefficients, select Pearson (selected by default)
- Under Hypothesis, select your alternative hypothesis

Alternatively, you could perform a linear regression analysis. The test outcomes of both methods will be equivalent. Click on the links to learn more about these methods!

Scatter Plots of Bivariate Relationships - Dependent/Independent Variables



Correlation Matrix

Correlation Matrix

		Adverts	Sales	Airplay	Image
Adverts	**Pearson's r**	—			
	df	—			
	p-value	—			
Sales	**Pearson's r**	0.578	—		
	df	198	—		
	p-value	<.001	—		
Airplay	**Pearson's r**	0.102	0.599	—	
	df	198	198	—	
	p-value	0.151	<.001	—	
Image	**Pearson's r**	0.081	0.326	0.182	—
	df	198	198	198	—
	p-value	0.256	<.001	0.010	—

Linear Regression

Model Fit Measures

				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.578	0.335	0.331	99.6	1	198	<.001

Note. Models estimated using sample size of N=200

Omnibus ANOVA Test

	Sum of Squares	df	Mean Square	F	p
Adverts	433688	1	433688	99.6	<.001
Residuals	862264	198	4355		

Note. Type 3 sum of squares

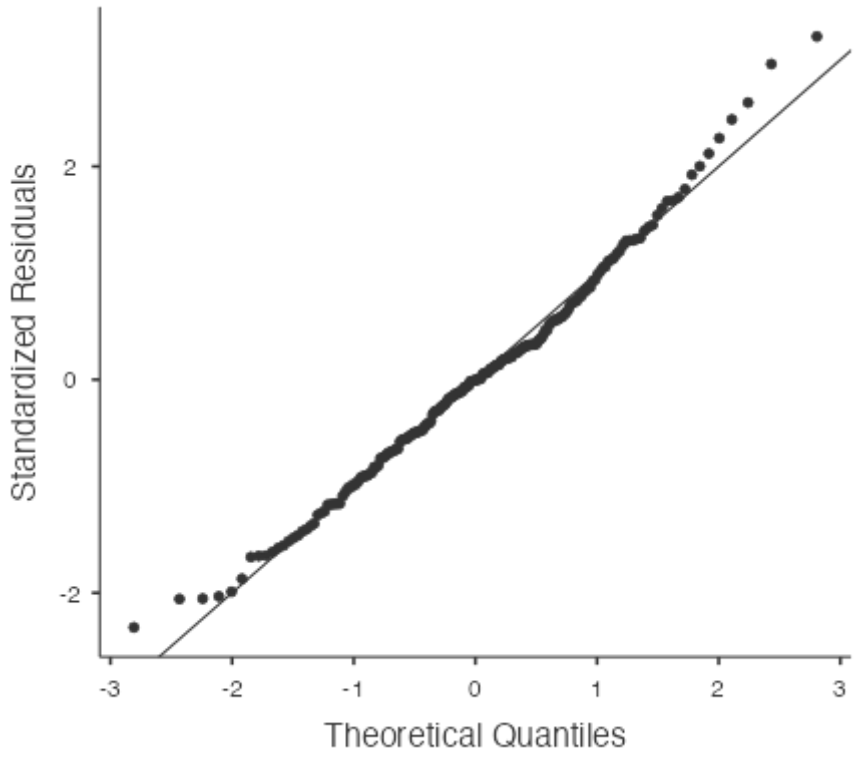
[3]

Model Coefficients - Sales

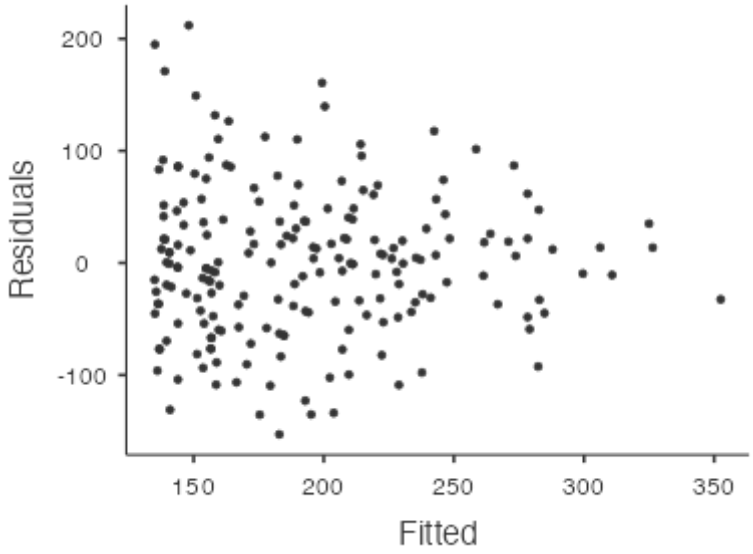
			95% Confidence Interval				
Predictor	**Estimate**	**SE**	**Lower**	**Upper**	**t**	**p**	**Stand. Estimate**
Intercept	134.1399	7.53657	119.2777	149.002	17.80	<.001	
Adverts	0.0961	0.00963	0.0771	0.115	9.98	<.001	0.578

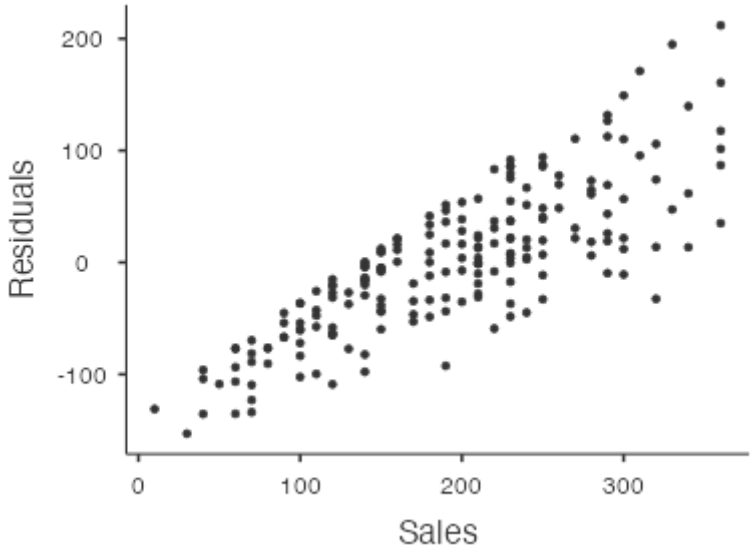
Assumption Checks

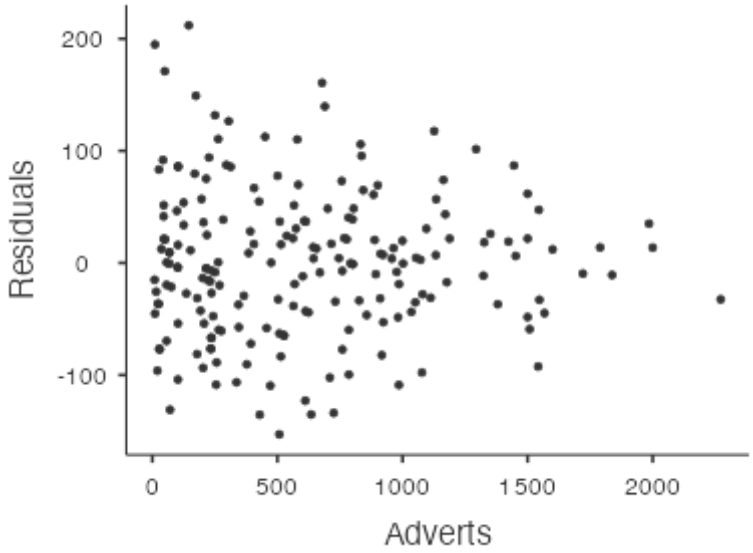
Q-Q Plot



Residuals Plots


Residuals
200
100
0
-100
150
200
250
300
350
Fitted


Residuals
200
100
0
-100
0
100
200
300
Sales


Residuals
200
100
0
-100
0
500
1000
1500
2000
Adverts

References

[1] The jamovi project (2024). *jamovi*. (Version 2.6) [Computer Software]. Retrieved from https://www.jamovi.org.

[2] R Core Team (2024). *R: A Language and environment for statistical computing*. (Version 4.4) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from CRAN snapshot 2024-08-07).

[3] Fox, J., & Weisberg, S. (2023). *car: Companion to Applied Regression*. [R package]. Retrieved from https://cran.r-project.org/package=car.