Results

Descriptives

```
jmv::descriptives(
    data = data,
    vars = vars(Adverts, Sales, Airplay),
    hist = TRUE,
    box = TRUE,
    mode = TRUE,
    variance = TRUE,
    range = TRUE,
    skew = TRUE,
    sw = TRUE,
    extreme = TRUE)
```

Descriptives

	Adverts	Sales	Airplay
N	200	200	200
Missing	0	0	0
Mean	614	193	27.5
Median	532	200	28.0
Mode	103 [a]	230	28.0
Standard deviation	486	80.7	12.3
Variance	235861	6512	151
Range	2263	350	63.0
Minimum	9.10	10.0	0.00
Maximum	2272	360	63.0
Skewness	0.853	0.0439	0.0597
Std. error skewness	0.172	0.172	0.172
Shapiro-Wilk W	0.925	0.985	0.993
Shapiro-Wilk p	< .001	0.030	0.408

[a] More than one mode exists, only the first is reported

Extreme Values

Extreme values of Adverts

		Row number	Value
Highest	1	184	2271.86
	2	43	2000.00
	3	87	1985.12
	4	88	1837.52
	5	23	1789.66
Lowest	1	164	9.10
	2	1	10.26
	3	152	10.65
	4	80	15.31
	5	155	20.46

Extreme values of Sales

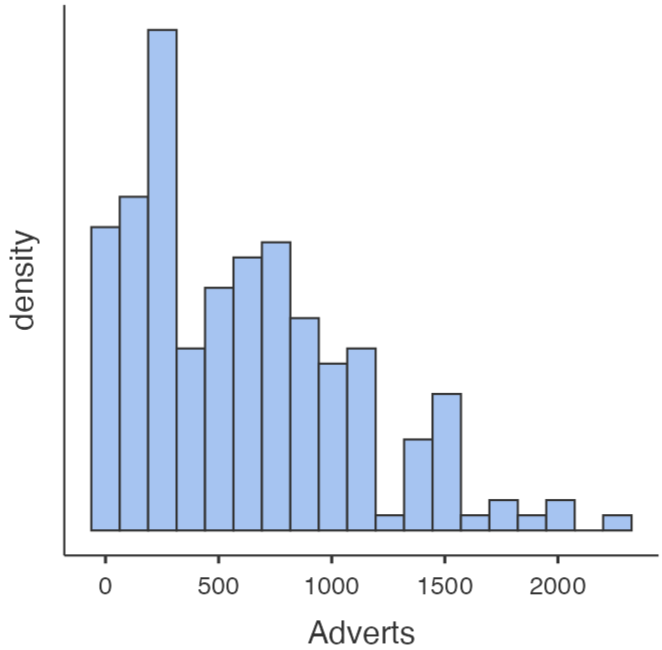
		Row number	Value
Highest	1	3	360.0
	2	86	360.0
	3	87	360.0
	4	124	360.0
	5	148	360.0
Lowest	1	125	10.0
	2	113	30.0
	3	47	40.0
	4	155	40.0
	5	167	40.0

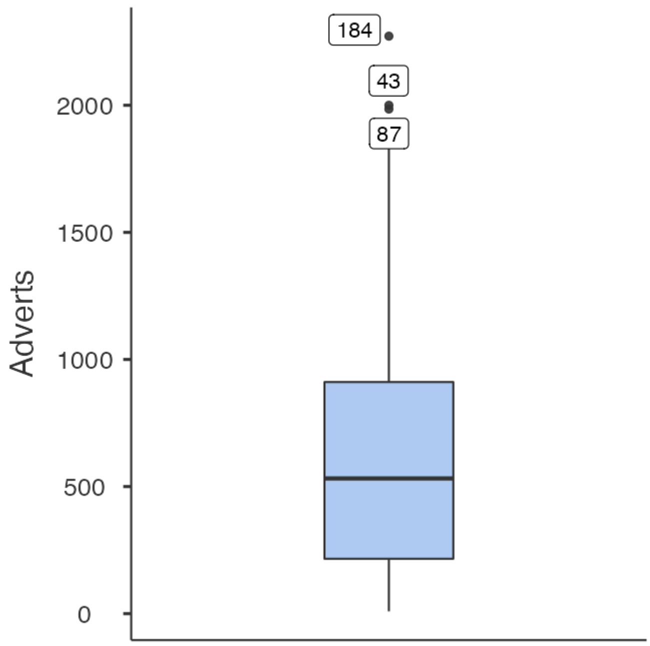
Extreme values of Airplay

		Row number	Value
Highest	1	42	63.00
	2	119	57.00
	3	99	55.00
	4	183	55.00
	5	105	54.00
Lowest	1	159	0.00
	2	82	1.00
	3	83	1.00
	4	94	1.00
	5	53	2.00

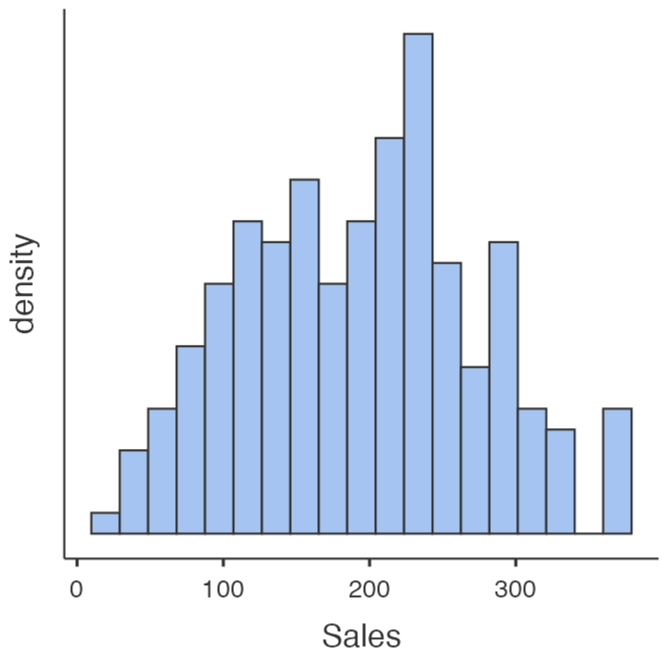
Plots

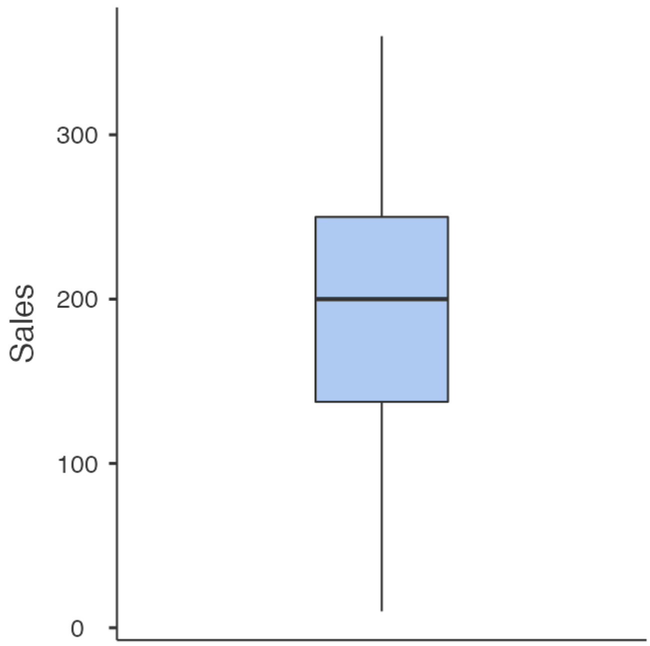
Adverts



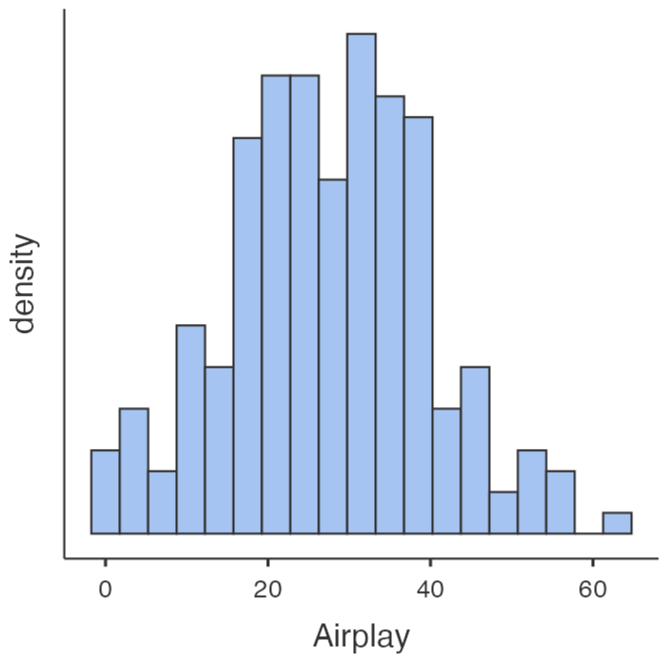

184
43
87
2000
1500
1000
500
0
Adverts

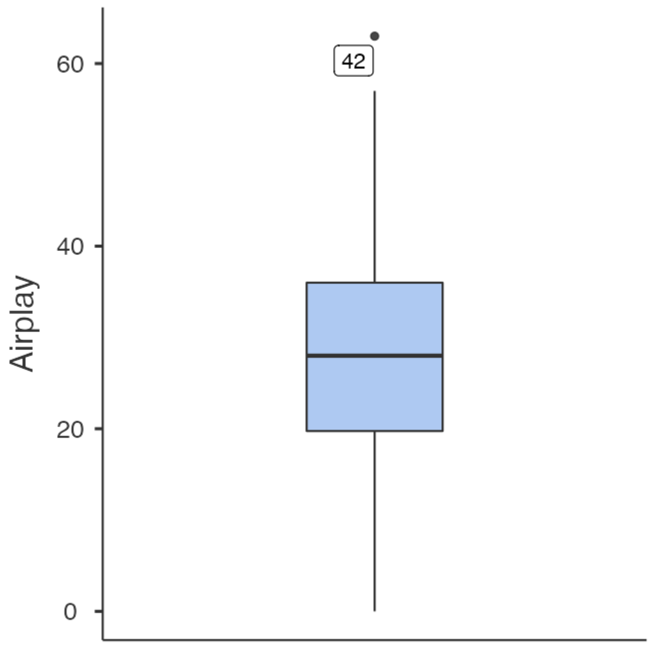
Sales


density
0
100
200
300
Sales



Airplay





Descriptives

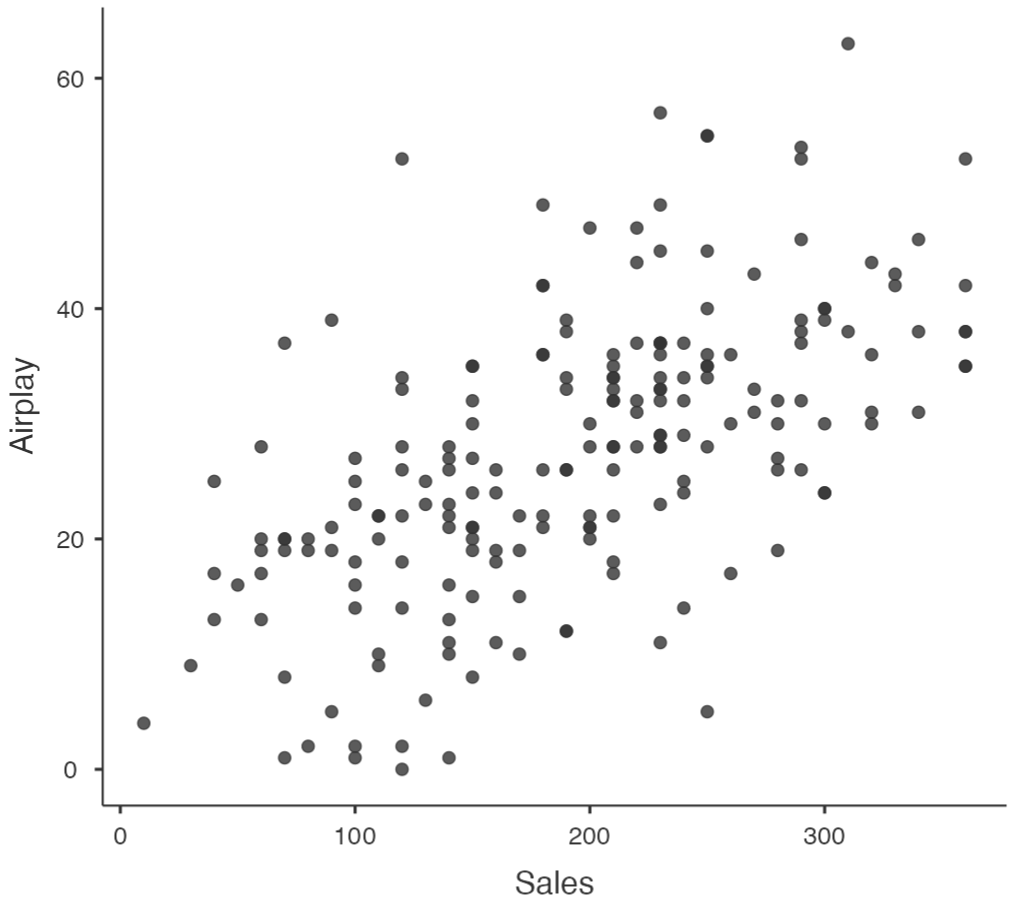
```
jmv::descriptives(
    data = data,
    vars = vars())
```

Descriptives

N	
Missing	
Mean	
Median	
Standard deviation	
Minimum	
Maximum	

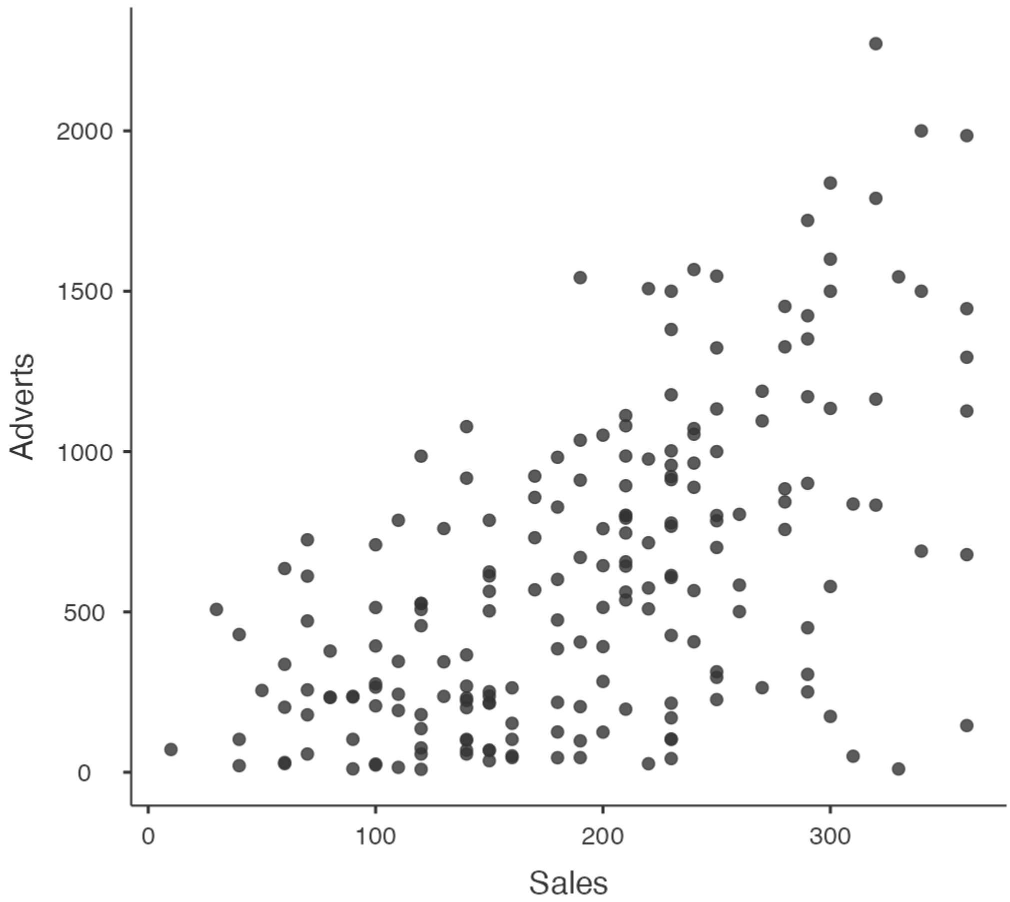
Scatterplot

```
scatr::scat(
    data = data,
    x = Sales,
    y = Airplay)
```



Scatterplot

```
scatr::scat(
    data = data,
    x = Sales,
    y = Adverts)
```



Scatterplot

```
scatr::scat(
    data = data,
    x = ,
    y = )
```

Descriptives

```
jmv::descriptives(
    data = data,
    vars = Image,
    freq = TRUE,
    bar = TRUE,
    mean = FALSE,
    median = FALSE,
    sd = FALSE,
    min = FALSE,
    max = FALSE)
```

Descriptives

	Image
N	200
Missing	0

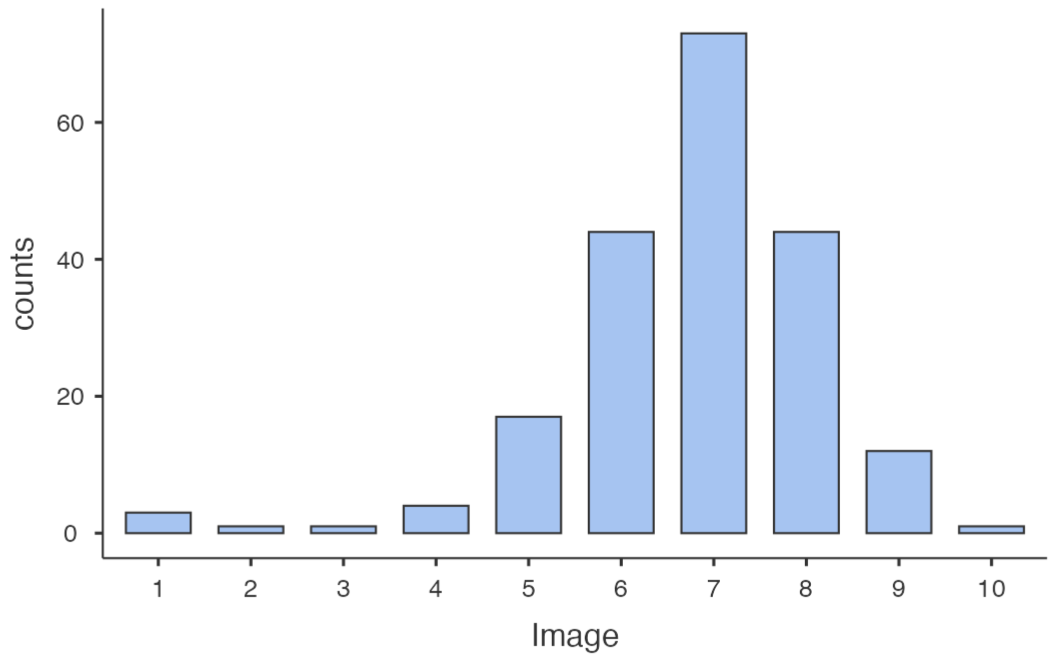
Frequencies

Frequencies of Image

Image	Counts	% of Total	Cumulative %
1	3	1.5 %	1.5 %
2	1	0.5 %	2.0 %
3	1	0.5 %	2.5 %
4	4	2.0 %	4.5 %
5	17	8.5 %	13.0 %
6	44	22.0 %	35.0 %
7	73	36.5 %	71.5 %
8	44	22.0 %	93.5 %
9	12	6.0 %	99.5 %
10	1	0.5 %	100.0 %

Plots

Image



Relationships, Prediction, and Group Comparisons

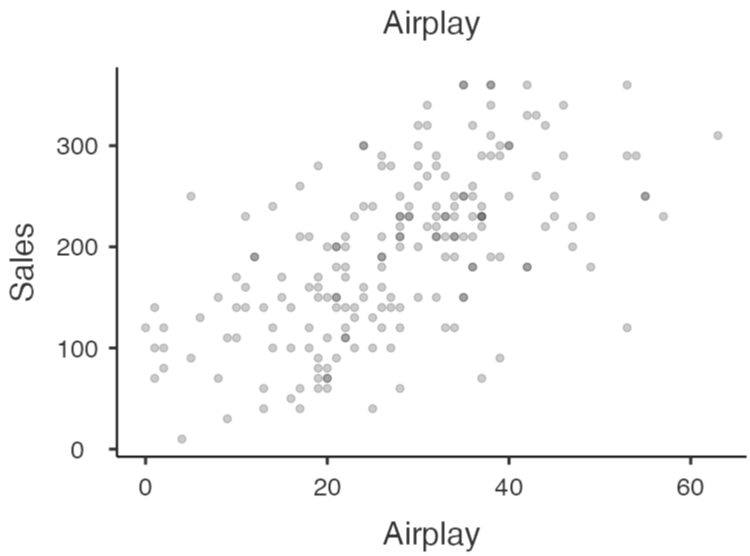
```
Statkat::correlational(
    data = data,
    dep = Sales,
    independents = vars(Airplay, Adverts))
```

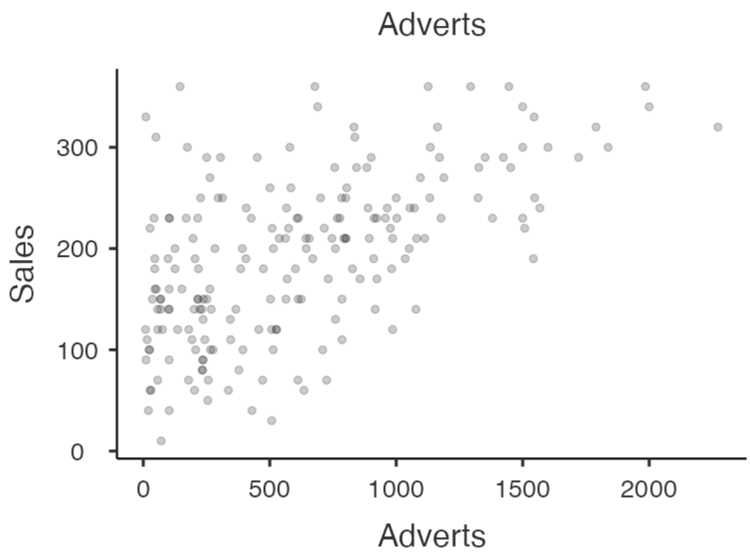
You have entered a numeric dependent variable and several numeric independent variables. Hence, linear regression analysis seems to be a good option for you! In order to run this analysis in jamovi, go to: Regression > Linear Regression

- Drop your dependent variable in the box below Dependent Variable
- Drop your independent variables in the box below Covariates

Click on the link to learn more about this method!

Scatter Plots of Bivariate Relationships - Dependent/Independent Variables





Relationships, Prediction, and Group Comparisons

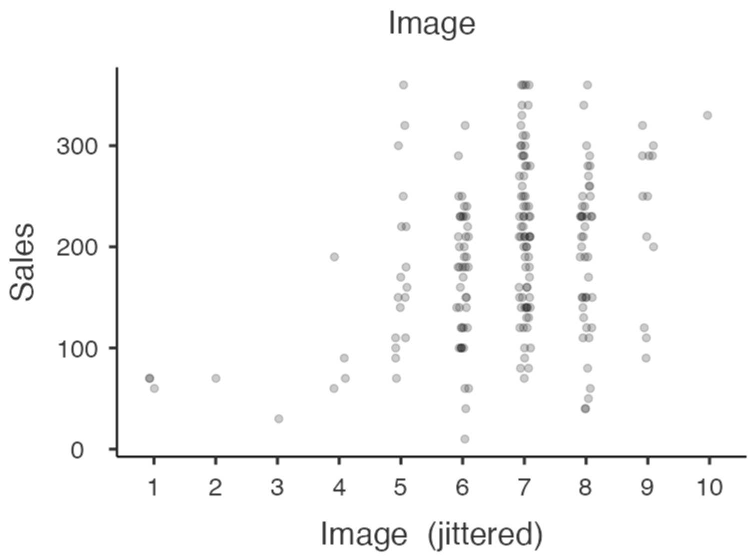
```
Statkat::correlational(
    data = data,
    dep = Sales,
    independents = Image)
```

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

- Drop your two variables in the white box at the right
- Under Correlation Coefficients, select Spearman
- Under Hypothesis, select your alternative hypothesis

An alternative option would be one way ANOVA, which is is a test for the difference between several population means. Your numeric variable would be the dependent variable and your ordinal variable would be the independent variable (grouping factor). The disadvantage of the one way ANOVA is that it will not take the ranked nature of the ordinal independent variable into account. That is, it will treat the ordinal independent variable as a nominal variable. On the other hand, the disadvantage of Spearman's rho is that it treats the numeric variable as an ordinal variable, rather than an interval/ratio variable. Click on the links to learn more about these methods!

Scatter Plots of Bivariate Relationships - Dependent/Independent Variables



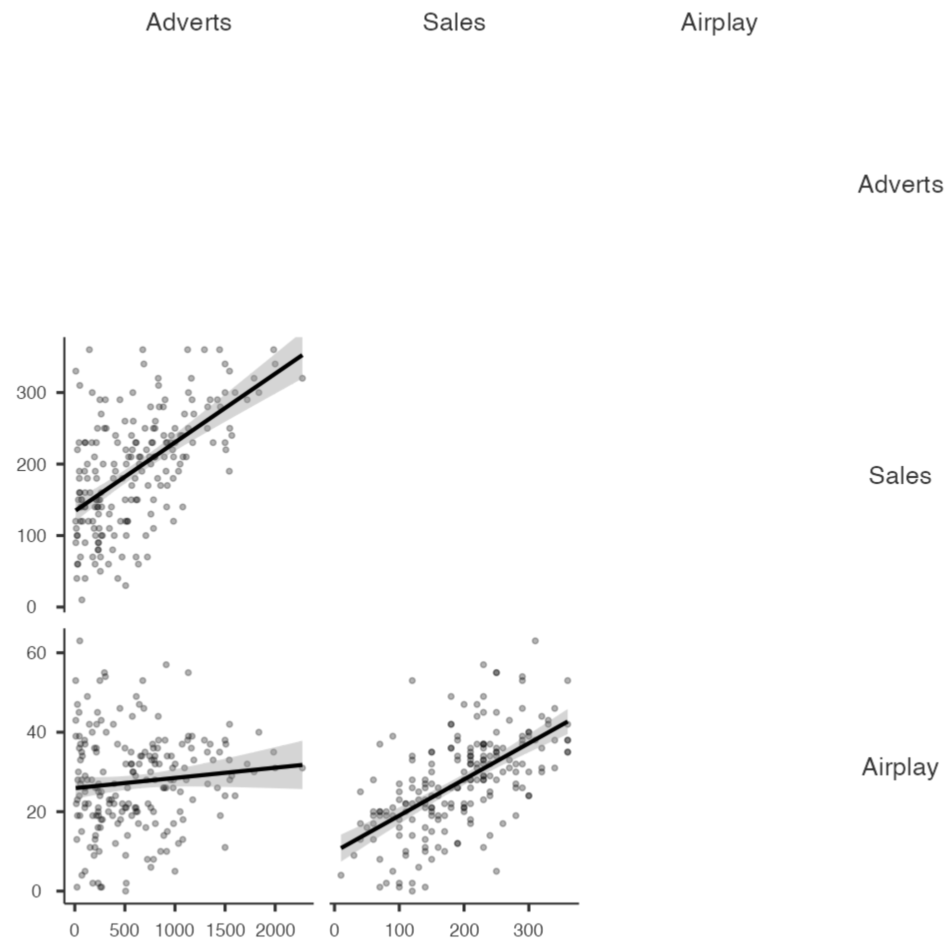
Correlation Matrix

```
jmv::corrMatrix(
    data = data,
    vars = vars(Adverts, Sales, Airplay),
    plots = TRUE)
```

Correlation Matrix

		Adverts	Sales	Airplay
Adverts	Pearson's r	—		
	p-value	—		
Sales	Pearson's r	0.578	—	
	p-value	<.001	—	
Airplay	Pearson's r	0.102	0.599	—
	p-value	0.151	<.001	—

Plot



Relationships, Prediction, and Group Comparisons

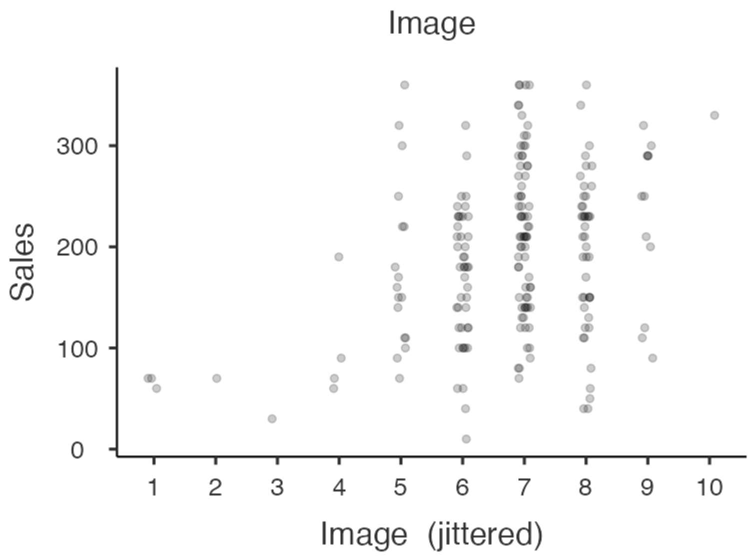
```
Statkat::correlational(
    data = data,
    dep = Sales,
    independents = Image)
```

You have entered a numeric variable for Variable 1 / Dependent Variable and an ordinal variable for Variable 2 / Independent Variables. Hence, [Spearman's rank correlation coefficient](), which is a measure for the strength of the monotonic relationship between two variables, seems to be a good option for you! In order to run this analysis in , go to: Regression > Correlation Matrix

- Drop your two variables in the white box at the right
- Under Correlation Coefficients, select Spearman
- Under Hypothesis, select your alternative hypothesis

An alternative option would be [one way ANOVA](), which is is a test for the difference between several population means. Your numeric variable would be the dependent variable and your ordinal variable would be the independent variable (grouping factor). The disadvantage of the one way ANOVA is that it will not take the ranked nature of the ordinal independent variable into account. That is, it will treat the ordinal independent variable as a nominal variable. On the other hand, the disadvantage of Spearman's rho is that it treats the numeric variable as an ordinal variable, rather than an interval/ratio variable. Click on the links to learn more about these methods!

Scatter Plots of Bivariate Relationships - Dependent/Independent Variables



Correlation Matrix

```
jmv::corrMatrix(
    data = data,
    vars = vars())
```

Correlation Matrix

Linear Regression

```
jmv::linReg(
    data = data,
    dep = Sales,
    covs = vars(Airplay, Adverts),
    blocks = list(
        list(
            "Airplay",
            "Adverts"),
        list()),
    refLevels = list(),
    modelTest = TRUE,
    stdEst = TRUE,
    norm = TRUE,
    resPlots = TRUE,
    collin = TRUE)
```

Model Fit Measures

			Overall Model Test			
Model	**R**	**R^2**	**F**	**df1**	**df2**	**p**
1	0.793	0.629	167	2	197	<.001
2	0.793	0.629	167	2	197	<.001

Model Comparisons

Comparison							
Model		Model	ΔR^2	F	df1	df2	p
1	-	2	0.00	NaN	0	197	NaN

Model Specific ResultsModel 1Model 2

Model Coefficients - Sales

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	41.1238	9.33095	4.41	< .001	
Airplay	3.5888	0.28681	12.51	< .001	0.546
Adverts	0.0869	0.00725	11.99	< .001	0.523

Assumption Checks

Collinearity Statistics

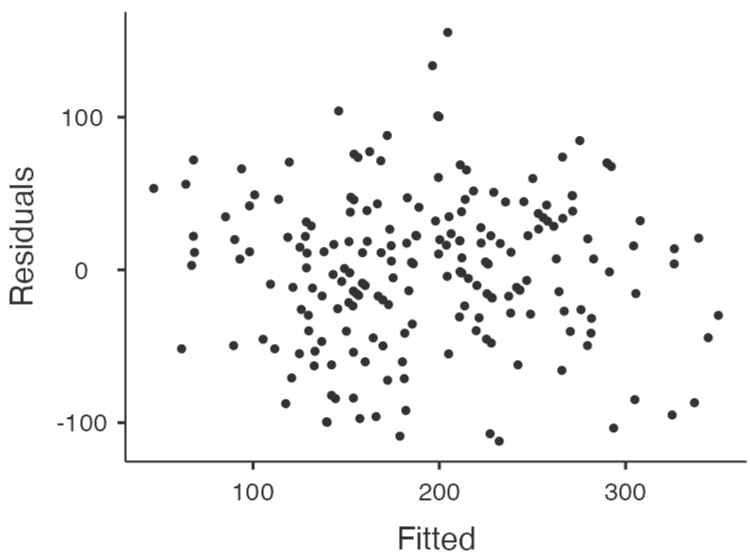
	VIF	Tolerance
Airplay	1.01	0.990
Adverts	1.01	0.990

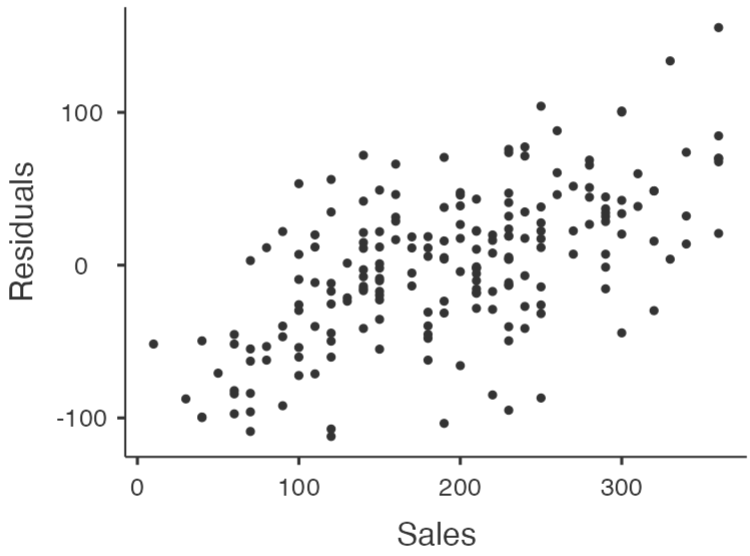
[3]

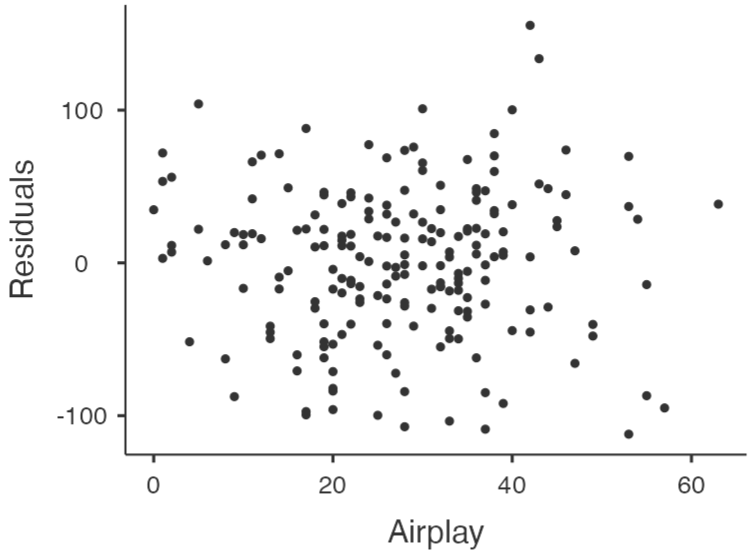
Normality Test (Shapiro-Wilk)

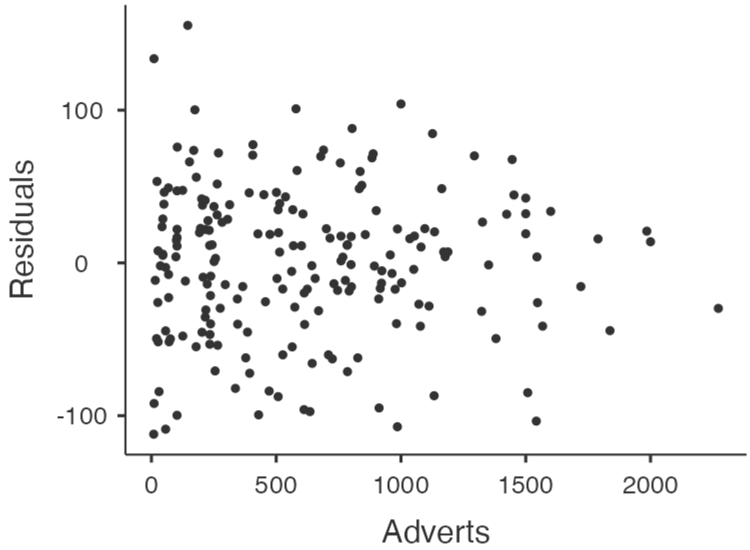
Statistic	p
0.991	0.274

Residuals Plots




Residuals
100
0
-100
0
100
200
300
Sales


Residuals
100
0
-100
0
20
40
60
Airplay


Residuals
100
0
-100
0
500
1000
1500
2000
Adverts

Model Coefficients - Sales

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	41.1238	9.33095	4.41	< .001	
Airplay	3.5888	0.28681	12.51	< .001	0.546
Adverts	0.0869	0.00725	11.99	< .001	0.523

Assumption Checks

Collinearity Statistics

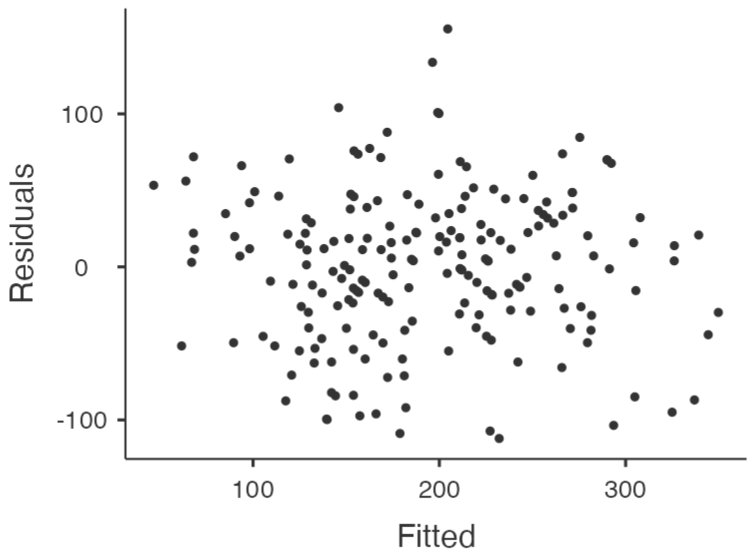
	VIF	Tolerance
Airplay	1.01	0.990
Adverts	1.01	0.990

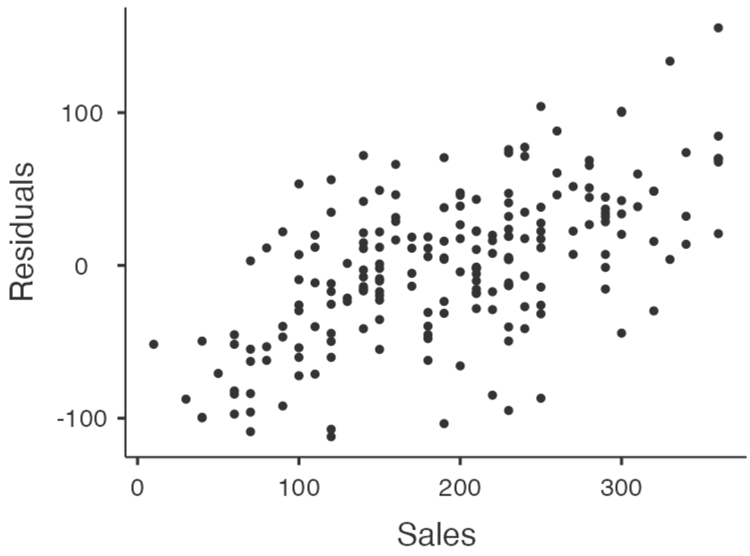
[3]

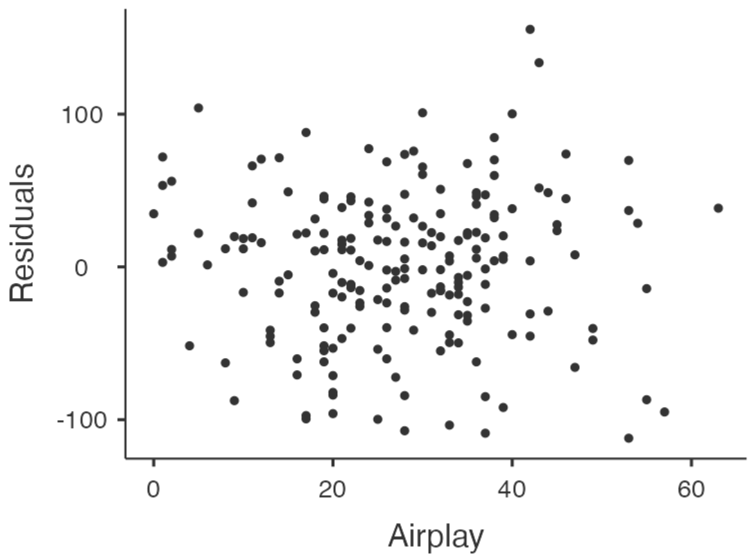
Normality Test (Shapiro-Wilk)

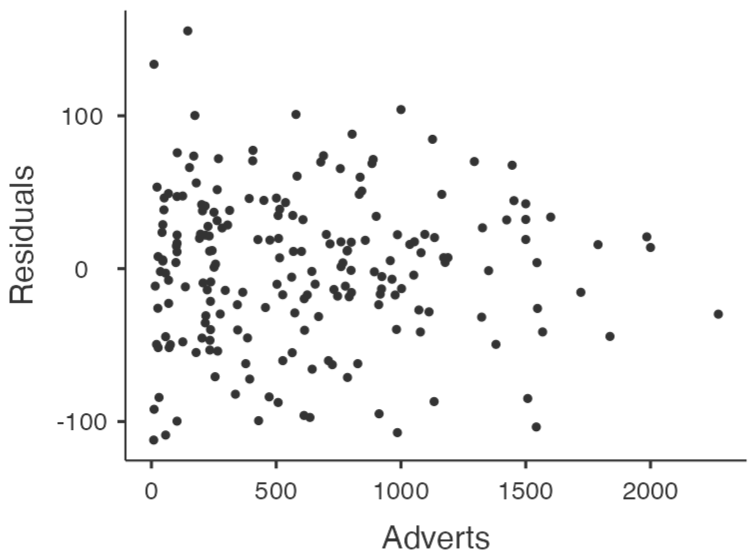
Statistic	p
0.991	0.274

Residuals Plots









Linear Regression

```
jmv::linReg(
    data = data,
    dep = Sales,
    covs = vars(Airplay, Adverts, Image),
```

```
    blocks = list(
        list(
            "Adverts"),
        list(
            "Airplay",
            "Image")),
    refLevels = list(),
    r2Adj = TRUE,
    modelTest = TRUE,
    anova = TRUE,
    ci = TRUE,
    stdEst = TRUE,
    ciStdEst = TRUE,
    norm = TRUE,
    qqPlot = TRUE,
    collin = TRUE)
```

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
2	0.815	0.665	0.660	129.5	3	196	< .001

Model Comparisons

Comparison							
Model		**Model**	**ΔR^2**	**F**	**df1**	**df2**	**p**
1	-	2	0.330	96.4	2	196	< .001

Model Specific ResultsModel 1Model 2

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					95% Confidence Interval	
Predictor	**Estimate**	**SE**	**Lower**	**Upper**	**t**	**p**	**Stand. Estimate**	**Lower**	**Upper**
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	0.464	0.693

Assumption Checks

Collinearity Statistics

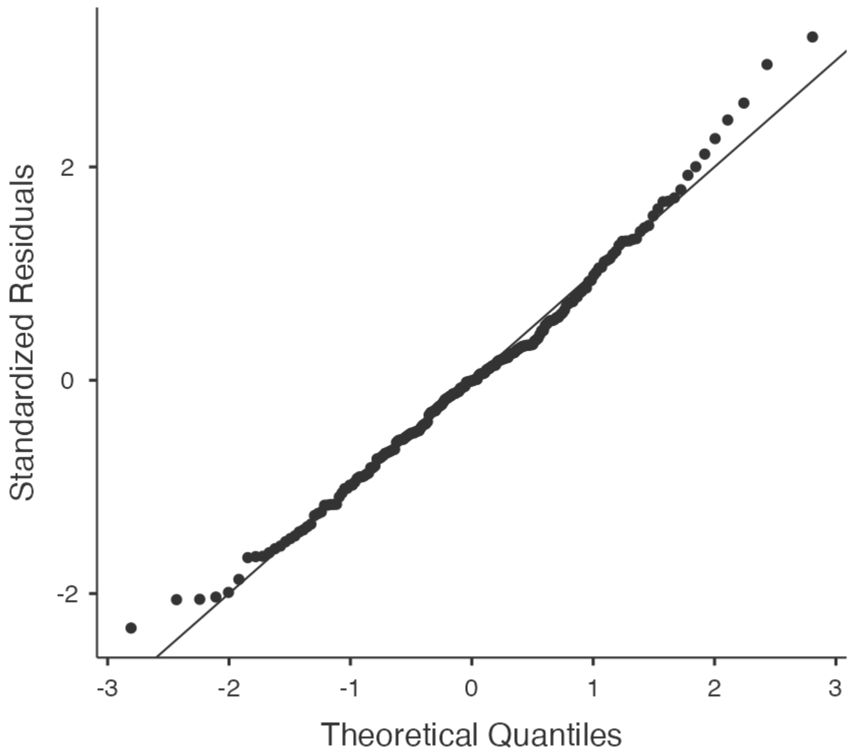
	VIF	Tolerance
Adverts	1.00	1.00

[3]

Normality Test (Shapiro-Wilk)

Statistic	p
0.990	0.176

Q-Q Plot



Omnibus ANOVA Test

	Sum of Squares	df	Mean Square	F	p
Adverts	333332	1	333332	150.3	< .001
Airplay	325860	1	325860	147.0	< .001
Image	45853	1	45853	20.7	< .001
Residuals	434575	196	2217		

Note. Type 3 sum of squares

[3]

Model Coefficients - Sales

			95% Confidence Interval					95% Confidence Interval	
Predictor	Estimate	SE	Lower	Upper	t	p	Stand. Estimate	Lower	Upper
Intercept	-26.6130	17.35000	-60.8296	7.6037	-1.53	0.127			
Adverts	0.0849	0.00692	0.0712	0.0985	12.26	< .001	0.511	0.429	0.593
Airplay	3.3674	0.27777	2.8196	3.9152	12.12	< .001	0.512	0.429	0.595
Image	11.0863	2.43785	6.2786	15.8941	4.55	< .001	0.192	0.109	0.275

Assumption Checks

Collinearity Statistics

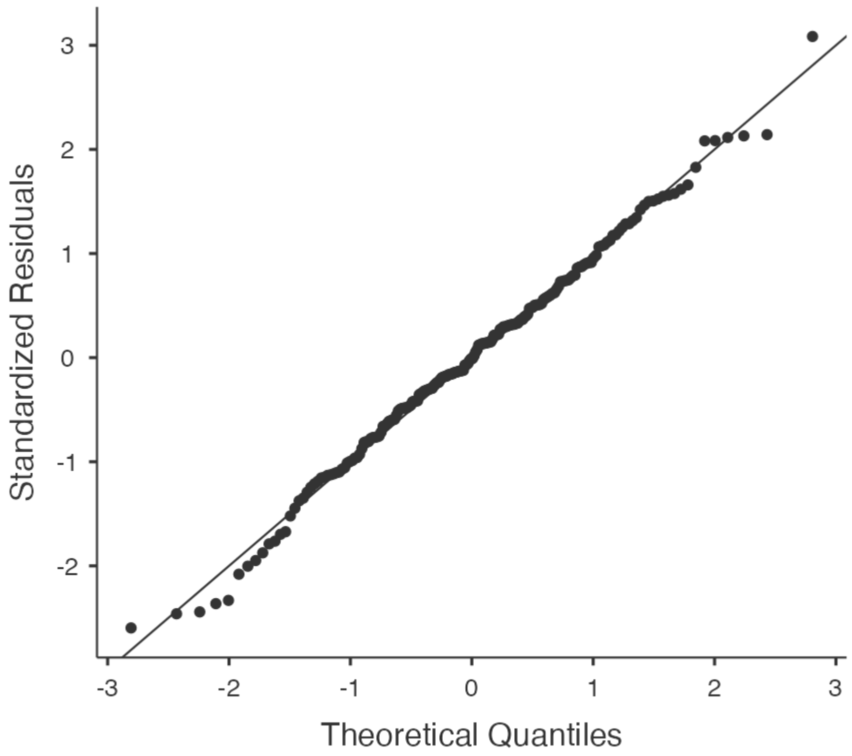
	VIF	Tolerance
Adverts	1.01	0.986
Airplay	1.04	0.959
Image	1.04	0.963

[3]

Normality Test (Shapiro-Wilk)

Statistic	p
0.995	0.725

Q-Q Plot



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.