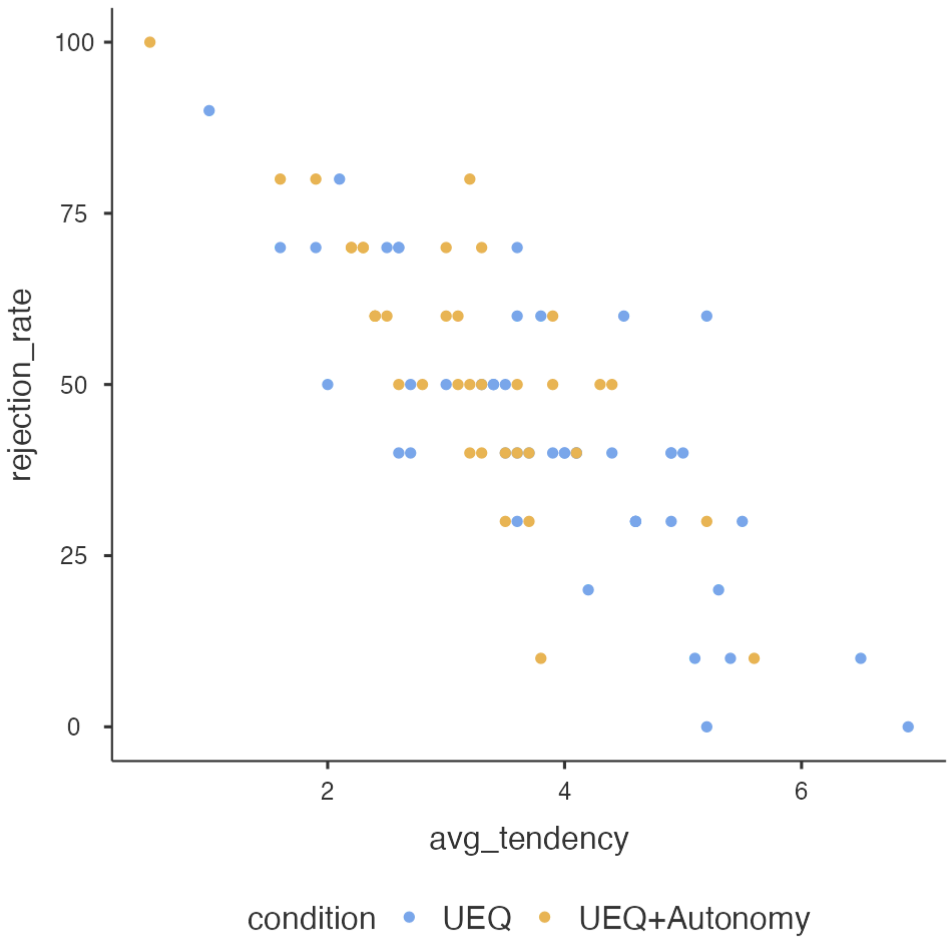
Results

Scatter Plot



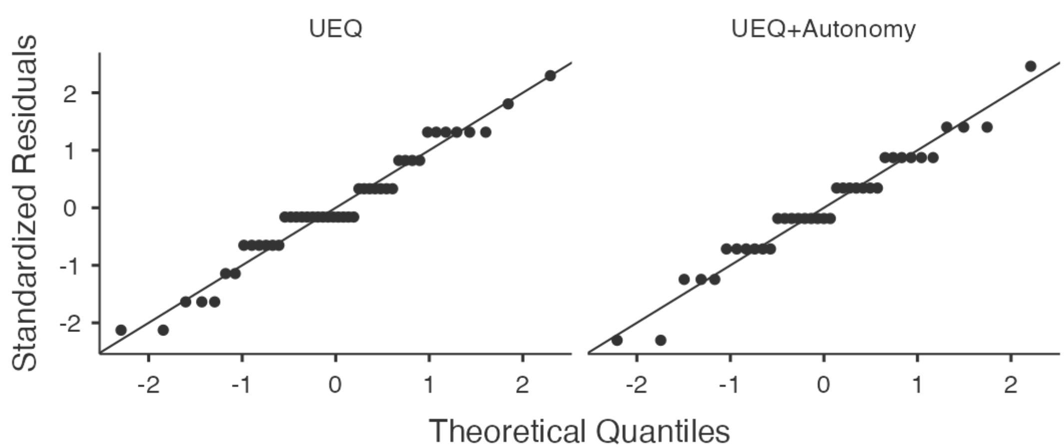
Descriptives

Descriptives

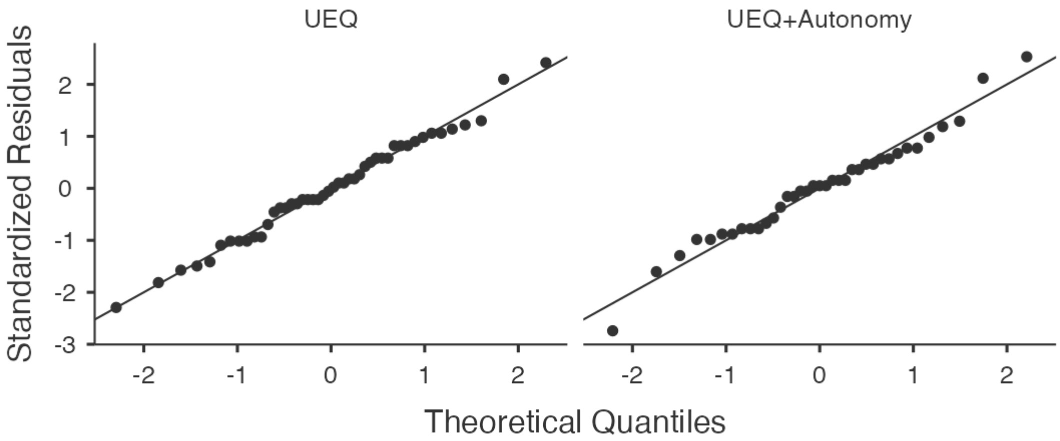
	condition	rejection_rate	avg_tendency
N	**UEQ**	46	46
	UEQ+Autonomy	37	37
Missing	**UEQ**	0	0
	UEQ+Autonomy	0	0
Mean	**UEQ**	43.3	3.87
	UEQ+Autonomy	53.5	3.15
Median	**UEQ**	40.0	3.85
	UEQ+Autonomy	50	3.20
Standard deviation	**UEQ**	20.3	1.25
	UEQ+Autonomy	18.9	0.967
Minimum	**UEQ**	0	1.00
	UEQ+Autonomy	10	0.500
Maximum	**UEQ**	90	6.90
	UEQ+Autonomy	100	5.60
Shapiro-Wilk W	**UEQ**	0.961	0.989
	UEQ+Autonomy	0.964	0.975
Shapiro-Wilk p	**UEQ**	0.131	0.938
	UEQ+Autonomy	0.265	0.549

Plots

rejection_rate



avg_tendency



Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference		Effect Size
rejection_rate	**Student's t**	-2.36	81.0	0.010	-10.3	4.35	Cohen's d	-0.520

Note. H_a $\mu_{UEQ} < \mu_{UEQ+Autonomy}$

Assumptions

Normality Test (Shapiro-Wilk)

	W	p
rejection_rate	0.965	0.022

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

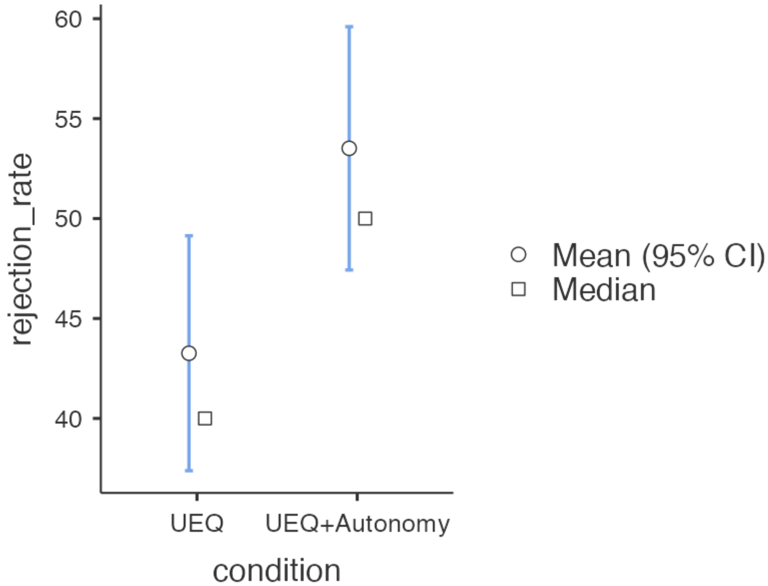
Homogeneity of Variances Test (Levene's)

	F	df	df2	p
rejection_rate	0.123	1	81	0.727

Note. A low p-value suggests a violation of the assumption of equal variances
[3]

Plots

rejection_rate



Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference		Effect Size
avg_tendency	**Student's t**	2.87	81.0	0.003	0.720	0.251	Cohen's d	0.635

Note. H_a $\mu_{UEQ} > \mu_{UEQ+Autonomy}$

Assumptions

Normality Test (Shapiro-Wilk)

	W	p
avg_tendency	0.993	0.935

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

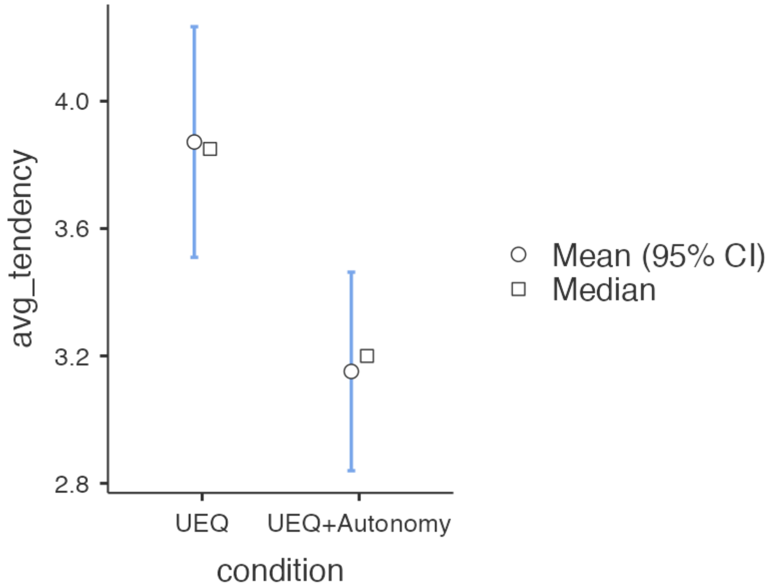
Homogeneity of Variances Test (Levene's)

	F	df	df2	p
avg_tendency	3.04	1	81	0.085

Note. A low p-value suggests a violation of the assumption of equal variances
[3]

Plots

avg_tendency



Independent Samples T-Test

The purpose of a power analysis is to evaluate the sensitivity of a design and test. You have chosen to calculate the minimum sample size needed to have an experiment sensitive enough to consistently detect the specified hypothetical effect size.

A Priori Power Analysis

		User Defined		
N_1	N_2	Effect Size	Power	α
49	49	0.600	0.900	0.0500

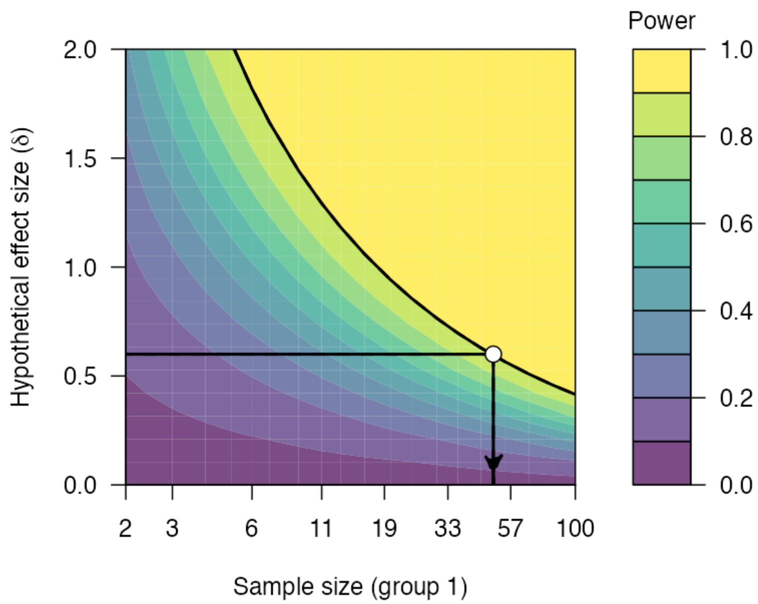
We would need a sample size of 49 in each group to reliably (with probability greater than 0.9) detect an effect size of δ≥0.6, assuming a one-sided criterion for detection that allows for a maximum Type I error rate of α=0.05.

To evaluate the design specified in the table, we can consider how sensitive it is to true effects of increasing sizes; that is, are we likely to correctly conclude that δ>0 when the effect size is large enough to care about?

Power by Effect Size

True effect size	Power to detect	Description
0 < δ ≤ 0.335	≤50%	Likely miss
0.335 < δ ≤ 0.506	50% – 80%	Good chance of missing
0.506 < δ ≤ 0.669	80% – 95%	Probably detect
δ ≥ 0.669	≥95%	Almost surely detect

Power Contour



The power contour plot shows how the sensitivity of the test changes with the hypothetical effect size and the sample sizes in the design. As we increase the sample sizes, smaller effect sizes become reliably detectable.

Conversely, if one is satisfied to reliably detect only larger effect sizes, smaller sample sizes are needed. The solid black curve on the contour plot shows sample size/effect size combinations with a power of 0.9. The point shows the specified design and effect size.

References

[1] The jamovi project (2025). *jamovi*. (Version 2.7) [Computer Software]. Retrieved from https://www.jamovi.org.

[2] R Core Team (2025). *R: A Language and environment for statistical computing*. (Version 4.5) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from CRAN snapshot 2025-05-25).

[3] Fox, J., & Weisberg, S. (2024). *car: Companion to Applied Regression*. [R package]. Retrieved from https://cran.r-project.org/package=car.