Brunner-Munzel Test

Test name: Brunner-Munzel Test

Dataset: D:\DATA ANALYSIS\J Nonparametric Tests\Brunner Munzel Test\dataset.csv

Original rows: 649

Rows used: 649

Grouping variable: sex

Outcome variable: G3

Group 1: F (n=383)

Group 2: M (n=266)

Brunner-Munzel W statistic: -3.468824

Two-sided p value: 0.000561828

Probability of superiority P(X<Y)+0.5P(X=Y): 0.421696

Bootstrap 95% CI for probability of superiority: [0.378530, 0.468099]

Decision at alpha=0.05: statistically significant

Null hypothesis: the two groups have equal relative effects (stochastic equality).

The test does not require equal variances or identically shaped distributions.

Interpret the probability estimate relative to group ordering shown above.

Values above 0.50 favour larger observations in group 2; values below 0.50 favour group 1.

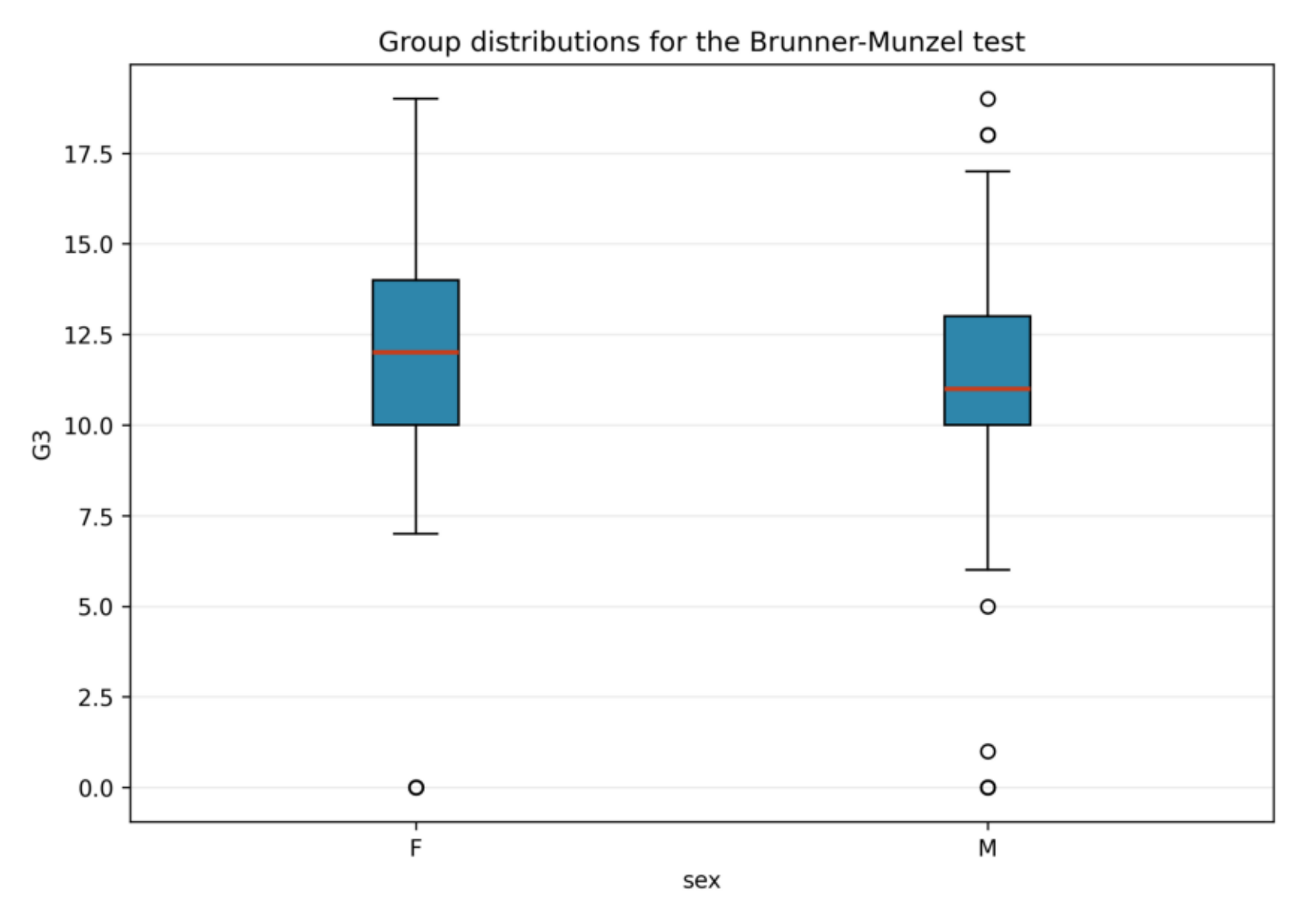
Charts generated: 4

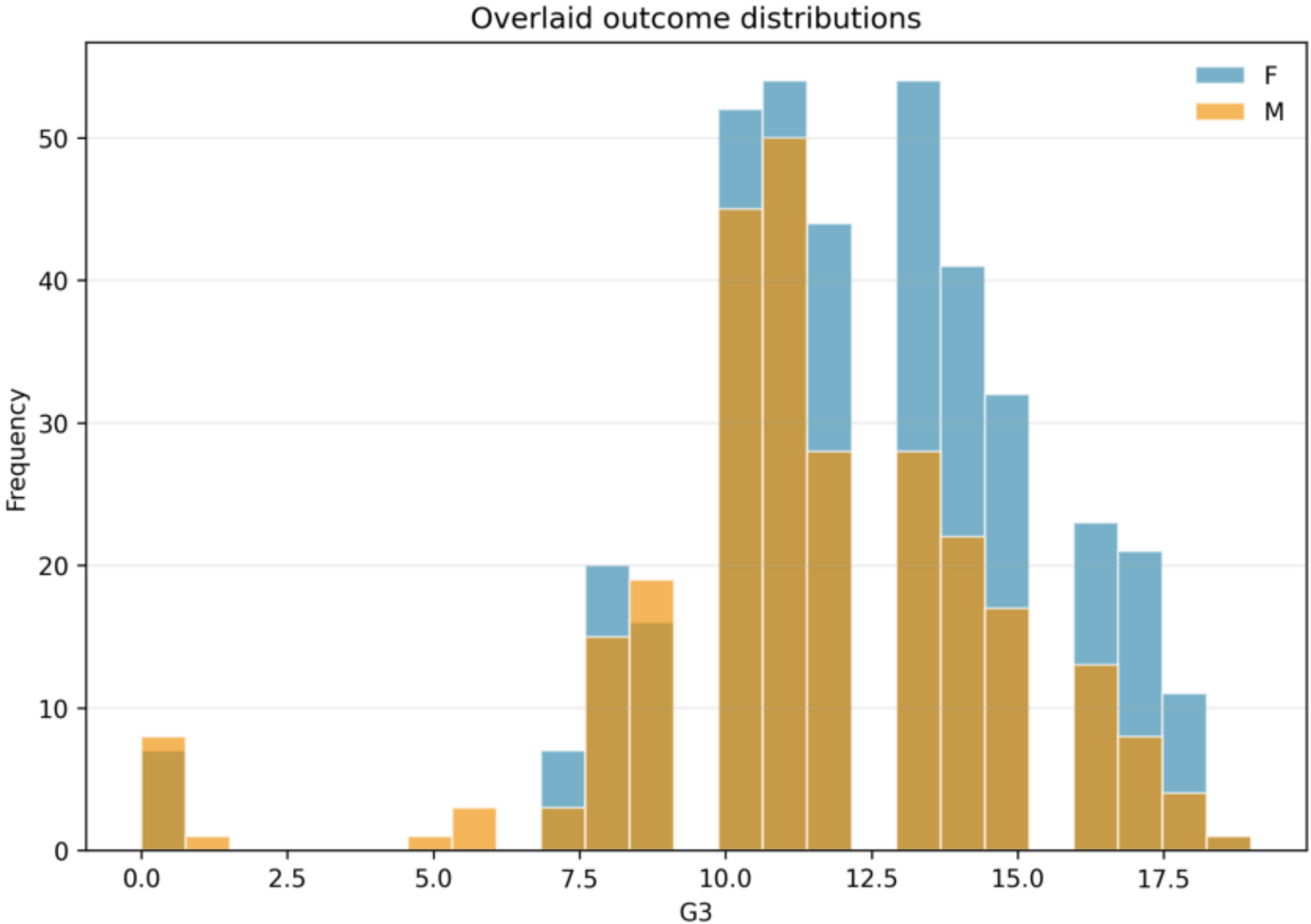
Test results

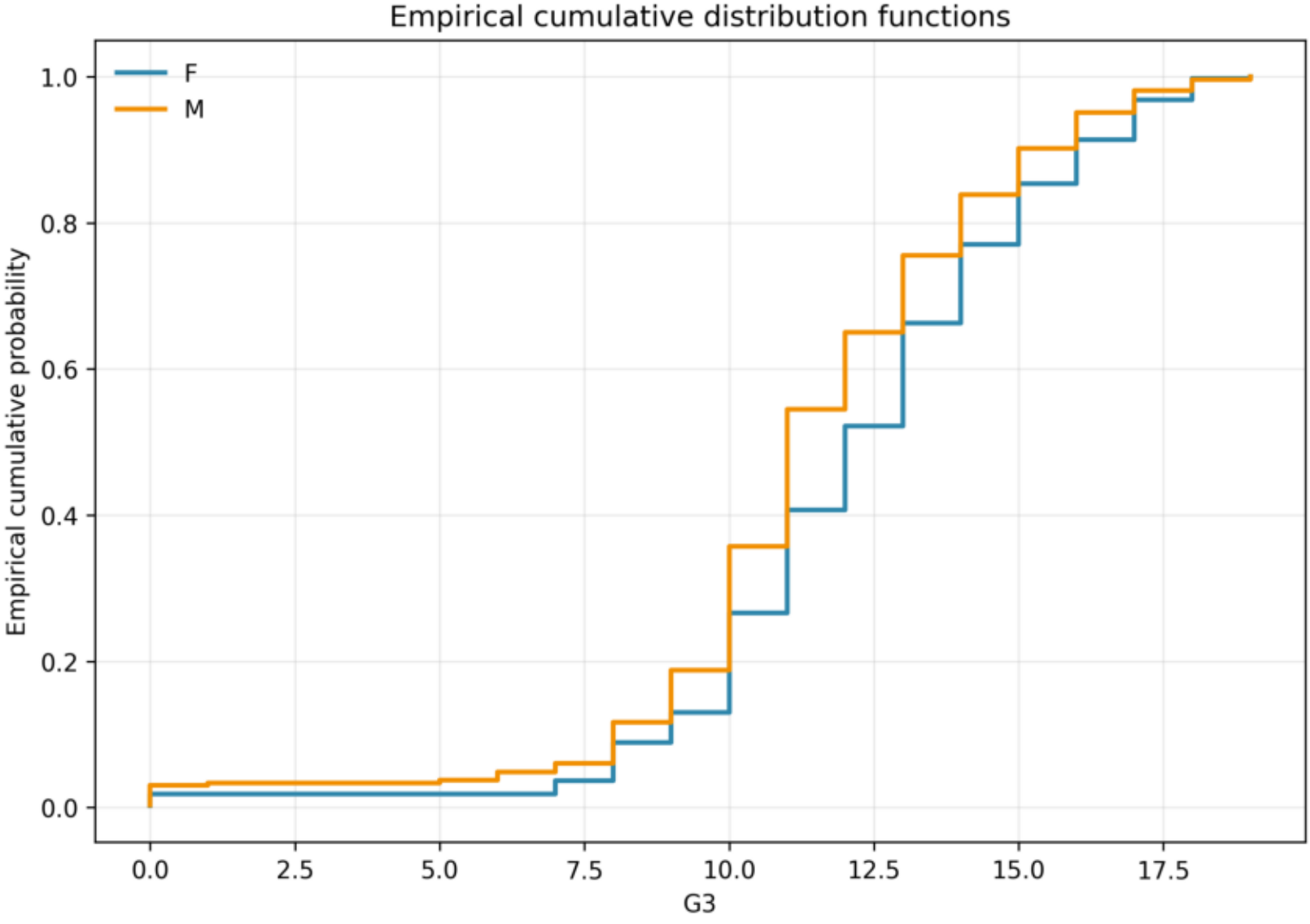
test	group_varia	outcome	group_1	group_2	n_group_1	n_group_2	w_statistic	p_value_tw	alpha	decision	probability_	bootstrap_c	bootstrap_di
Brunner-Mu	sex	G3	F	M	383.00000	266.00000	-3.46882	0.00056	0.05000	Reject equa	0.42170	0.37853	0.46810

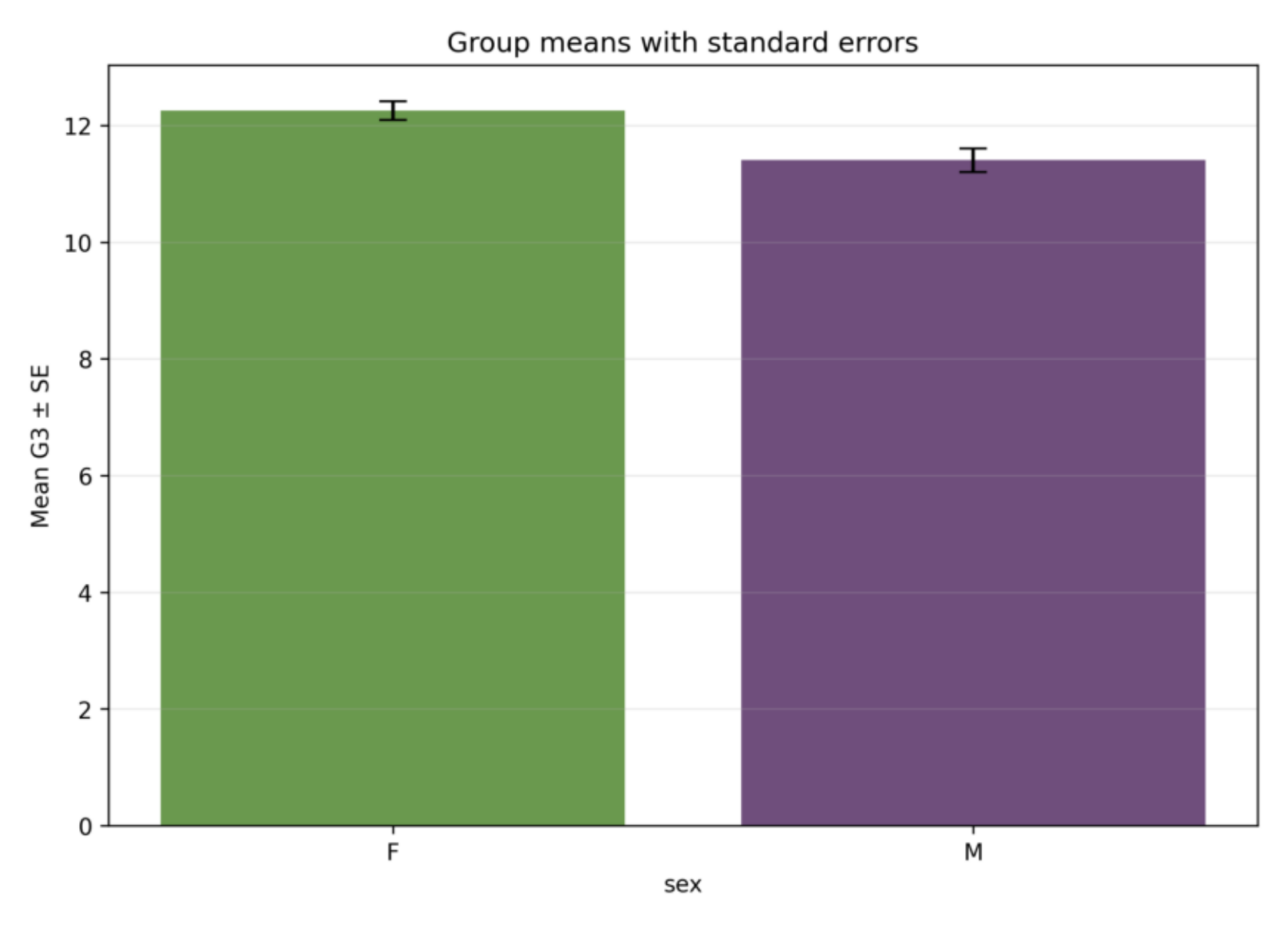
Descriptive statistics

group_variable	group	outcome	n	mean	sd	median	q1	q3	minimum	maximum
sex	F	G3	383.00000	12.25326	3.12415	12.00000	10.00000	14.00000	0.00000	19.00000
sex	M	G3	266.00000	11.40602	3.32069	11.00000	10.00000	13.00000	0.00000	19.00000


Group distributions for the Brunner-Munzel test
G3
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
F
M
sex


Overlaid outcome distributions
F
M
Frequency
0
10
20
30
40
50
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
G3


Empirical cumulative distribution functions
F
M
Empirical cumulative probability
1.0
0.8
0.6
0.4
0.2
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
G3


Group means with standard errors
Mean G3 ± SE
0
2
4
6
8
10
12
F
M
sex