

Binomial Test – R Report

Dataset: D:/DATA ANALYSIS/I Chi Square and Categorical Data Tests/Binomial Test/dataset.csv

Source variable: G3

Success definition: $G3 \geq 10$

Valid cases: 649

Successes: 549

Failures: 100

Observed proportion: 0.845917

Null proportion: 0.500000

Exact two-sided p-value: $5.996904756e-76$

Exact 95% CI: [0.815805, 0.872838]

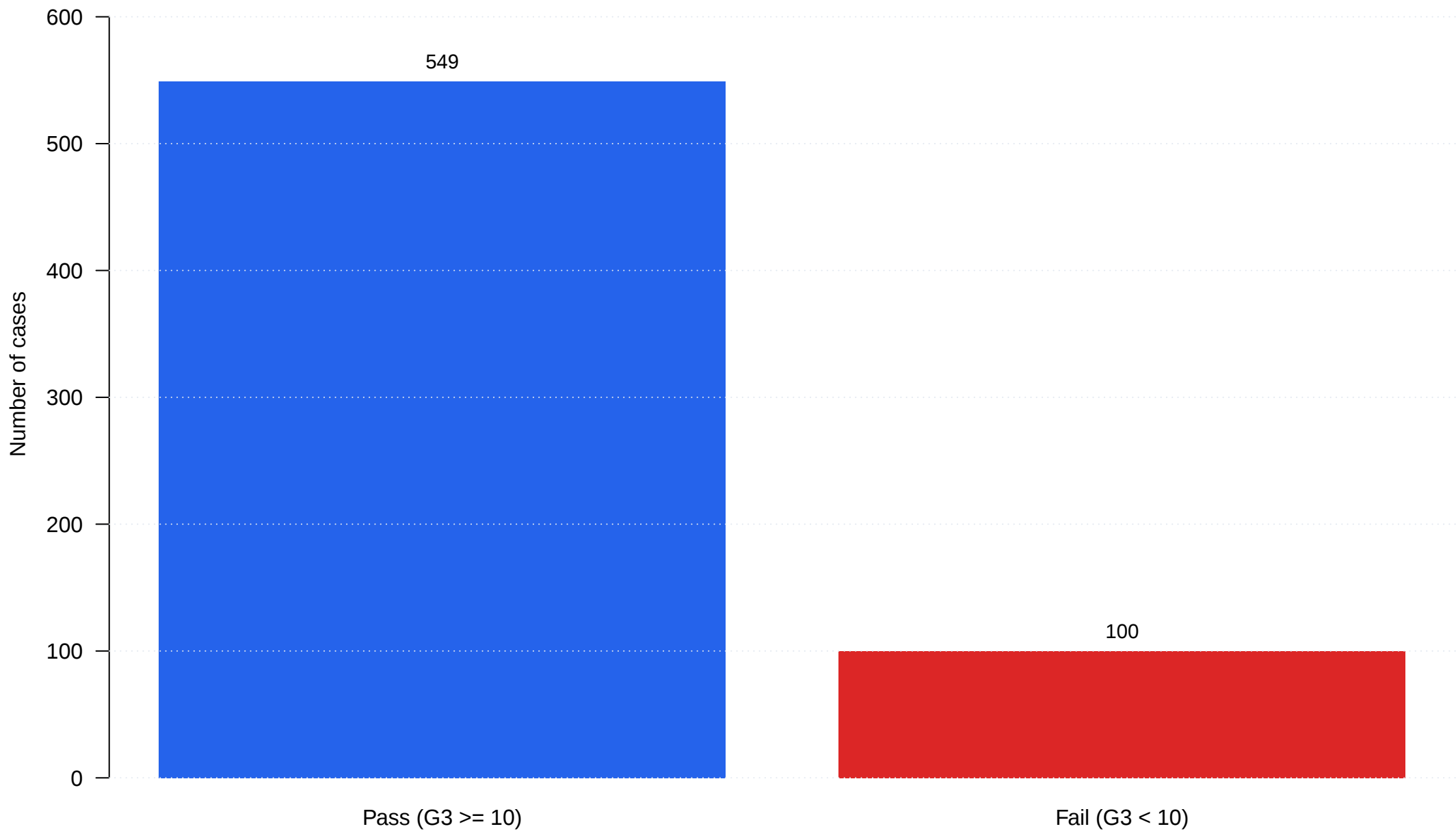
Cohen's h: 0.764025

Decision: Reject H0

An exact two-sided binomial test showed that the proportion of students meeting the success definition (549/649, $\hat{p} = 0.846$) was significantly different from the null proportion (0.500).

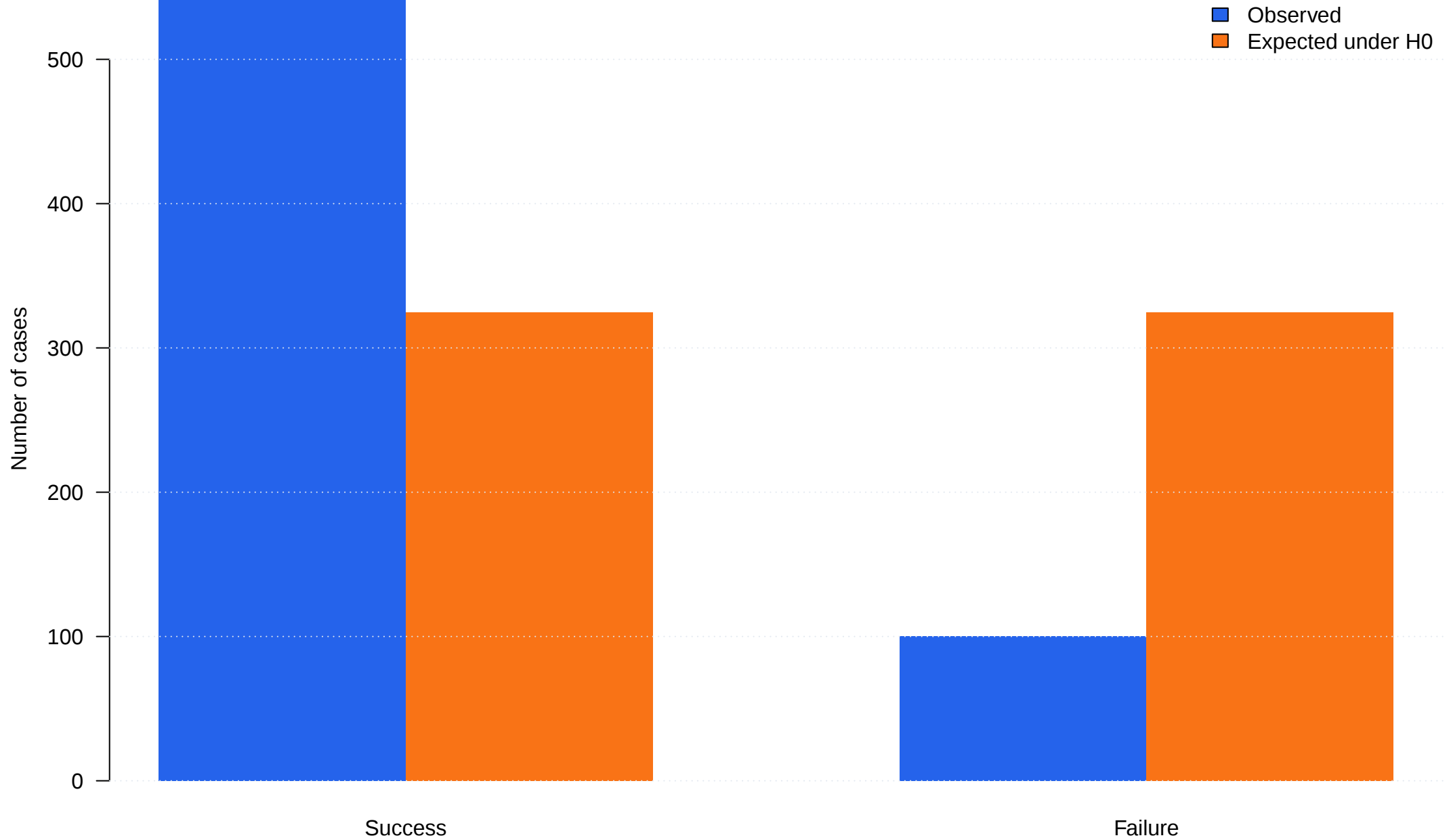
Observed Binomial Outcomes

Success is defined as $G3 \geq 10$; failure is $G3 < 10$.



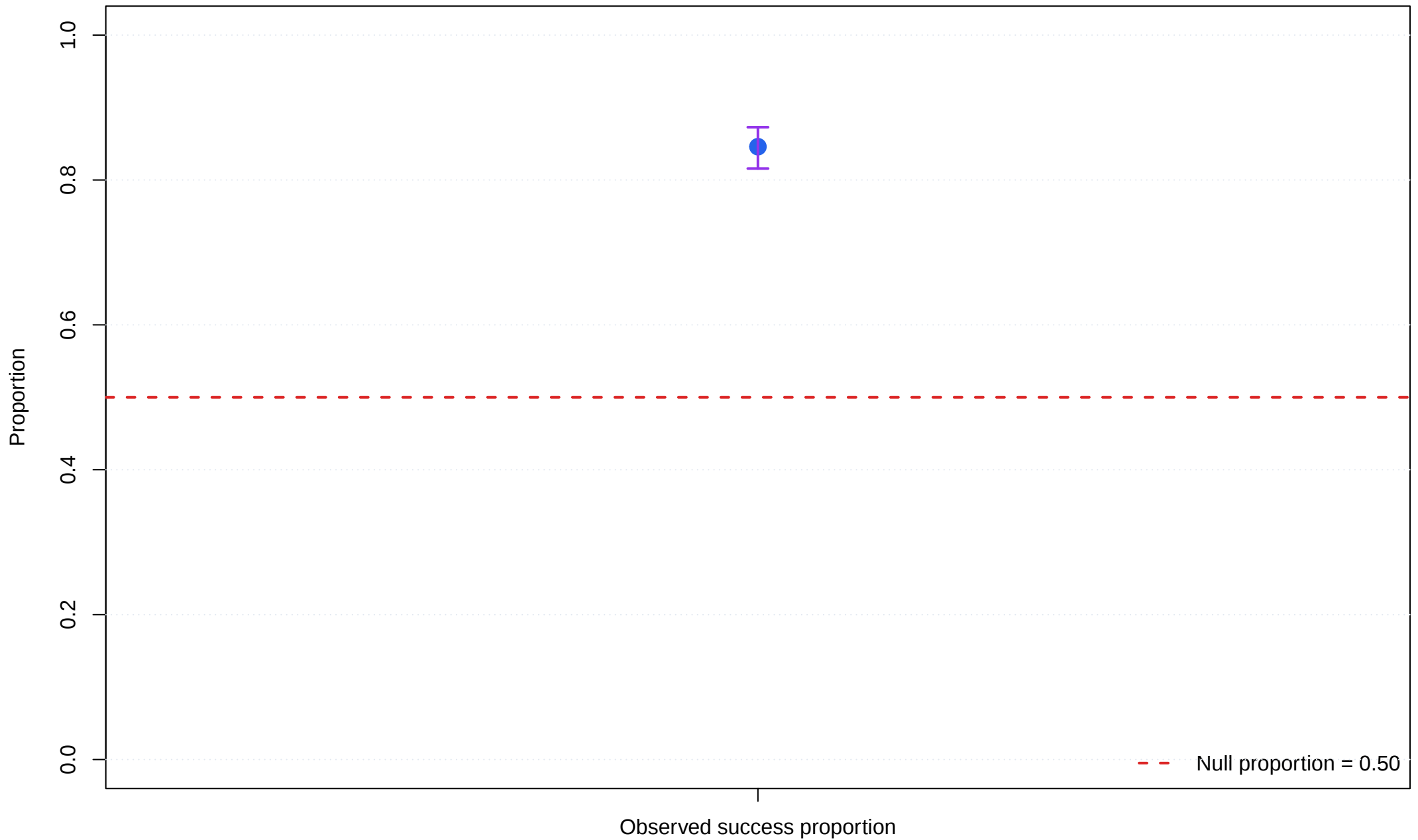
Observed and Expected Binomial Counts

Null hypothesis proportion $p_0 = 0.50$.



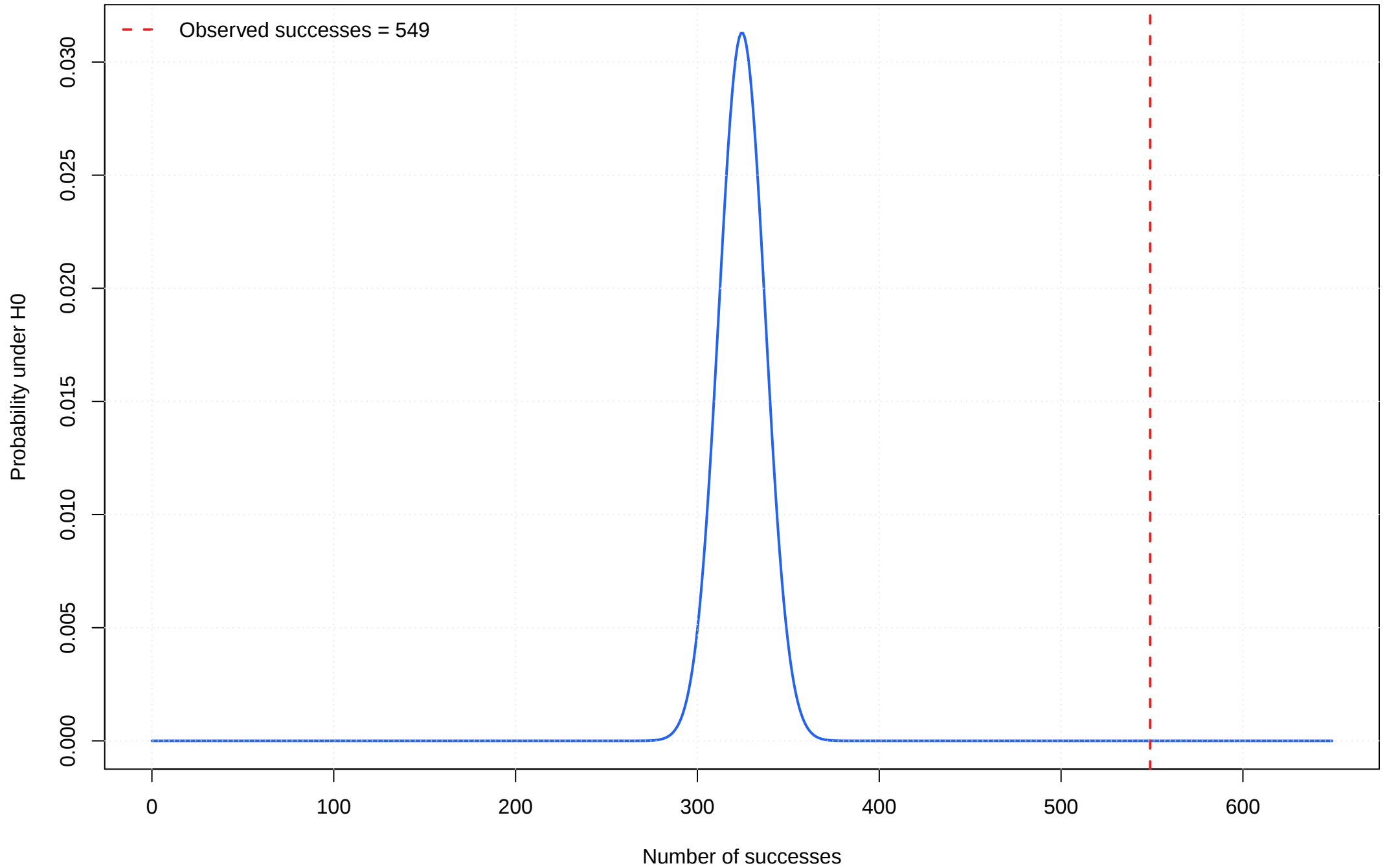
Observed Proportion with Exact 95% Confidence Interval

Observed p = 0.8459; exact CI = [0.8158, 0.8728].



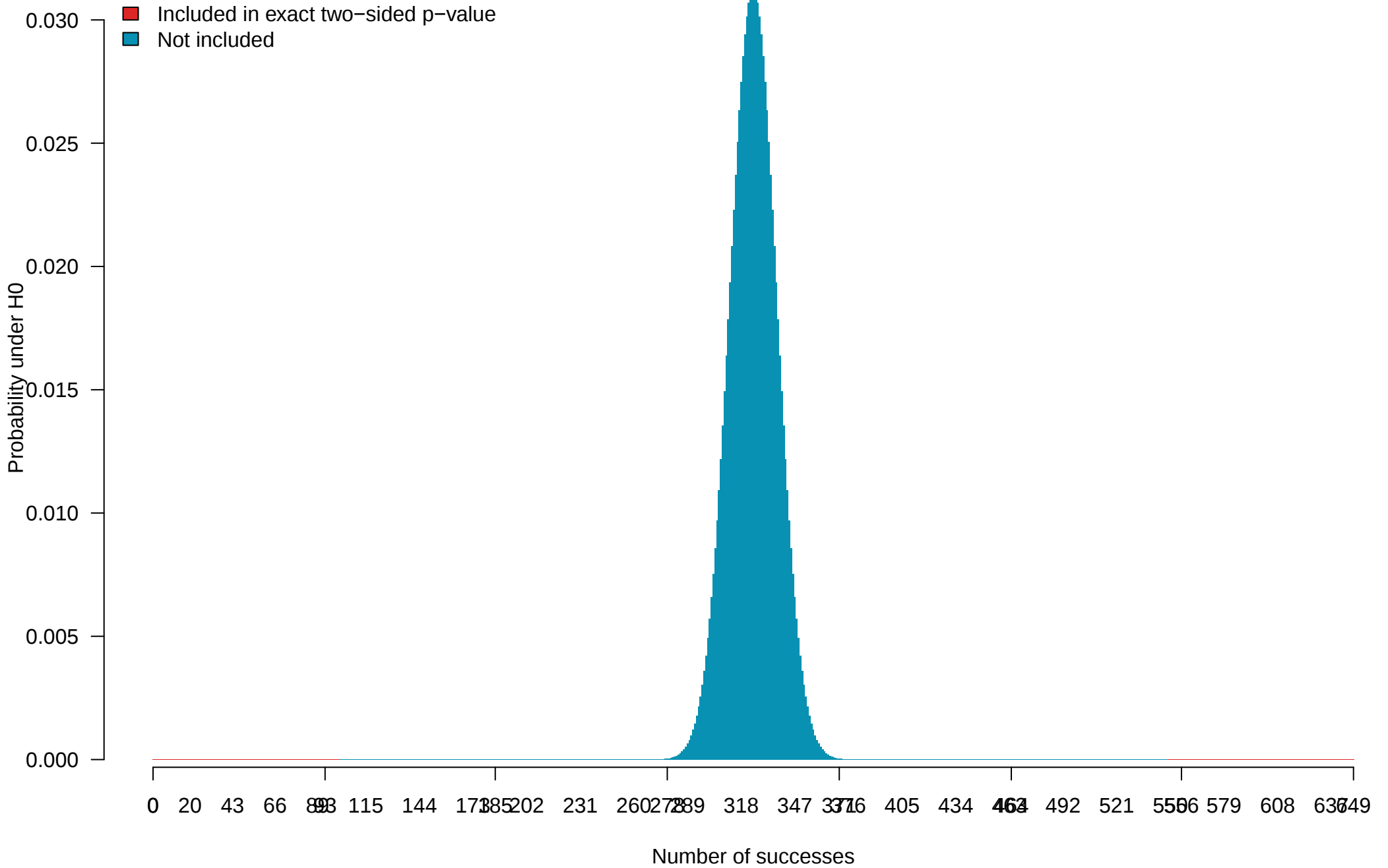
Exact Binomial Null Distribution

Distribution of $X \sim \text{Binomial}(n=649, p=0.50)$.



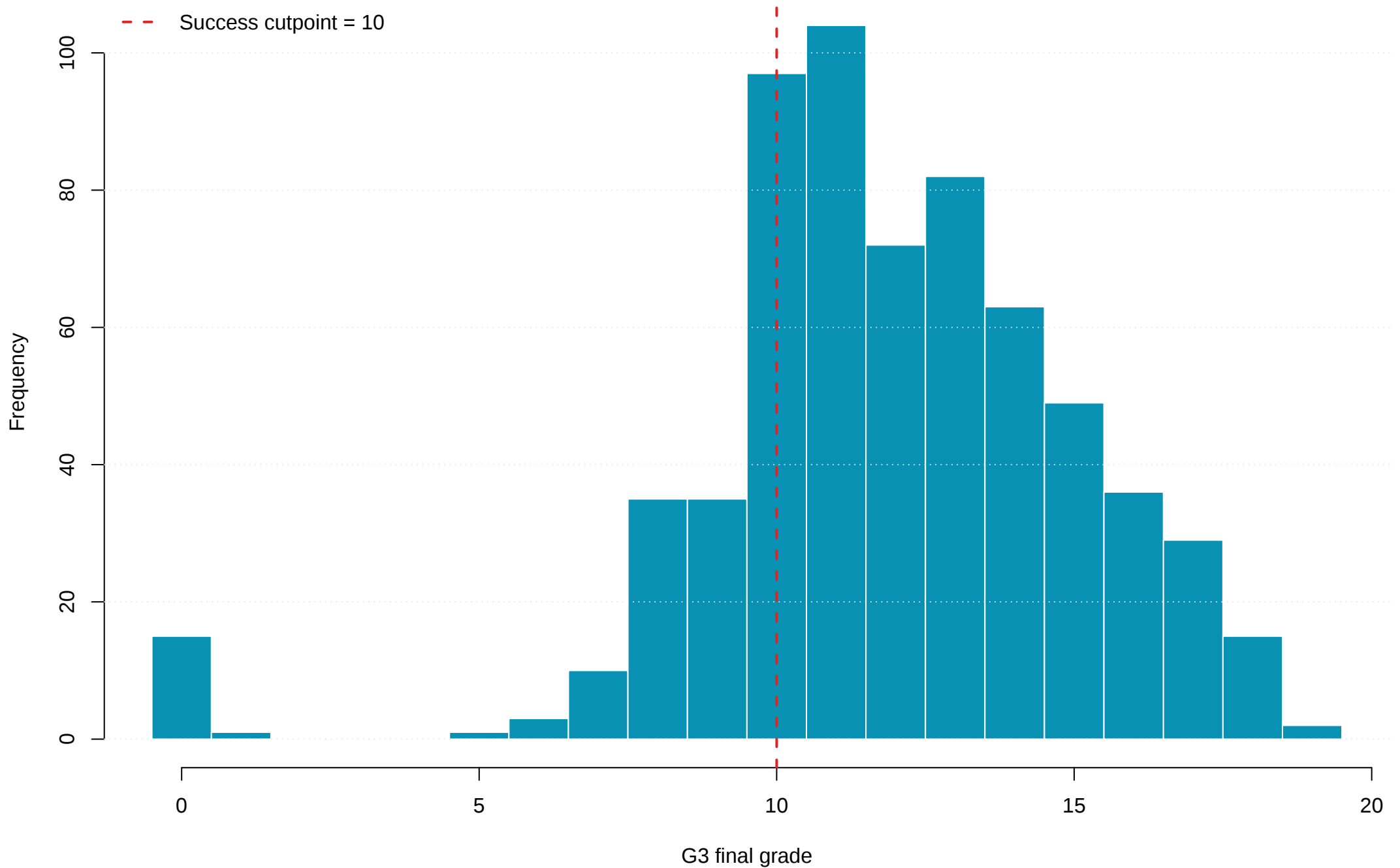
Two-Sided Exact Probability Region

Outcomes no more probable than the observed outcome are included.



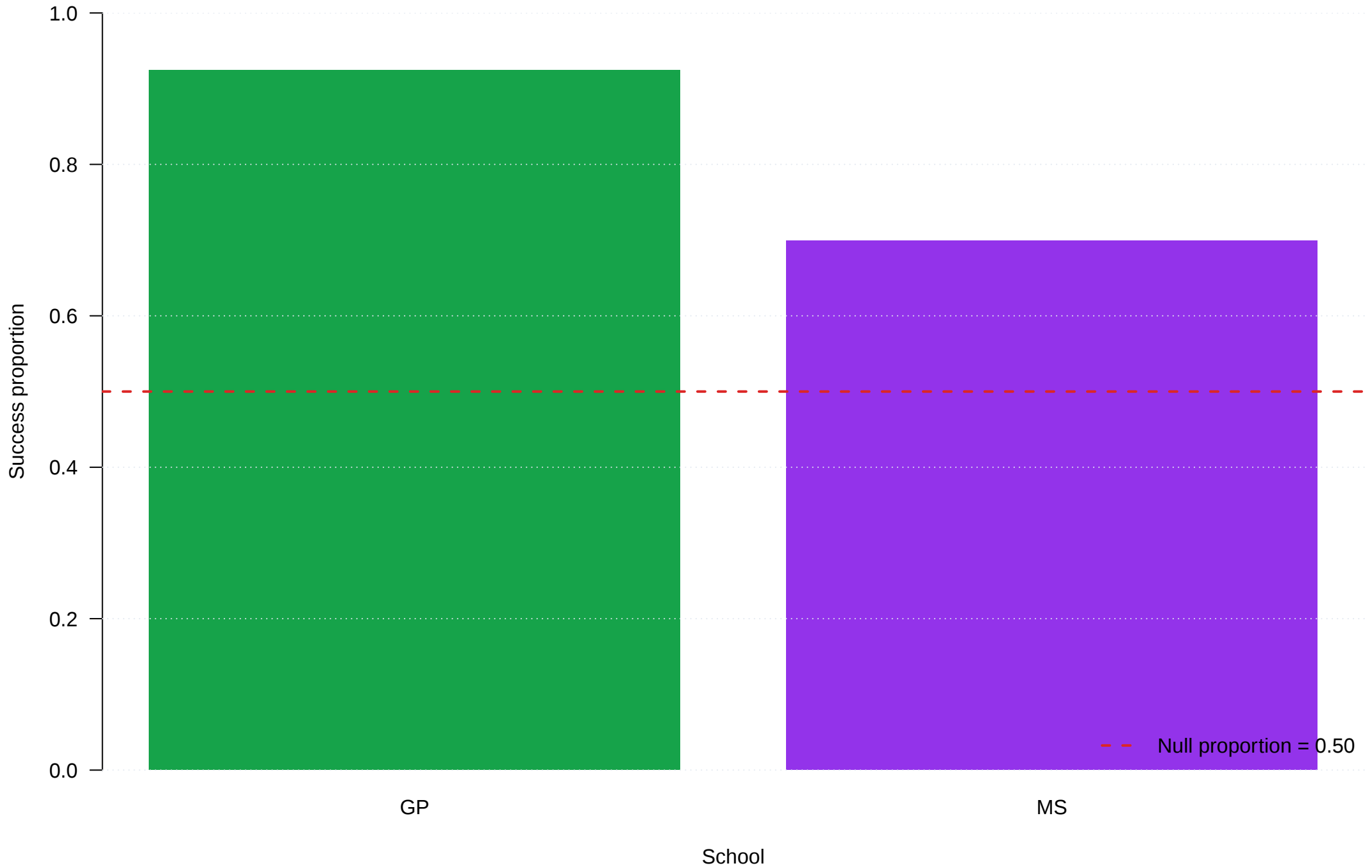
Source Variable Distribution and Success Cutpoint

Values at or above the cutpoint are coded as binomial successes.



Success Proportion by School

Descriptive subgroup comparison; the formal test uses the complete sample.



Success Proportion by Sex

Descriptive subgroup comparison; the formal test uses the complete sample.

