Secondary z-curve analysis

Secondary z-curve analyses

Four sensitivity analyses were conducted to assess the robustness of the results to different analytic decisions.

Sensitivity analysis 1

We conduct a z-curve analysis excluding p-values that could be not recomputed when reported as "$p < 0.001$", "$p < 0.005$" and "$p < 0.003$" but were imputed as $p = 0.0001$ and 0.0005 in the primary z-curve.

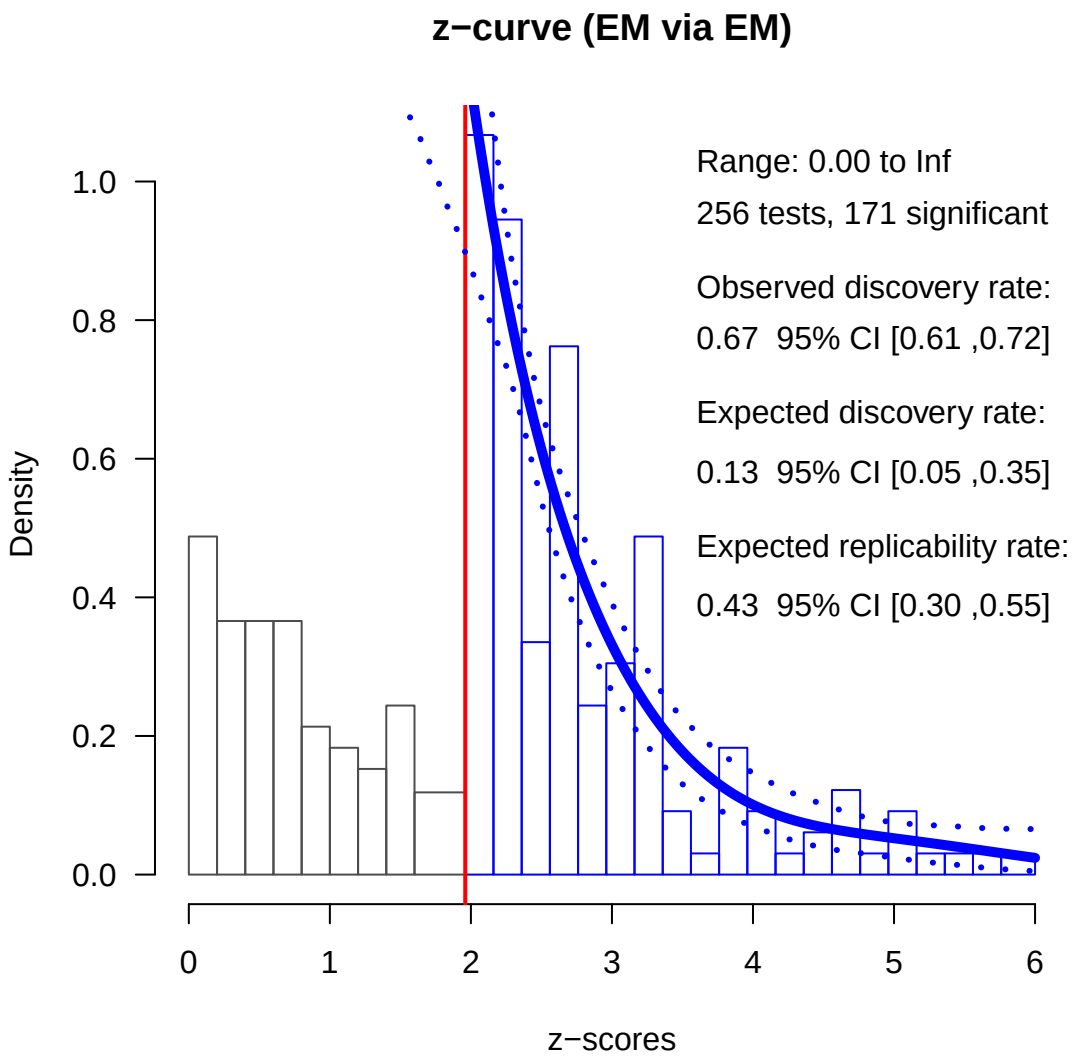
```
Call:
zcurve(p = sensitivity_1)

model: EM via EM

              Estimate  l.CI   u.CI
ERR              0.431 0.297  0.548
EDR              0.134 0.050  0.351
Soric FDR        0.341 0.097  1.000
File Drawer R    6.474 1.845 19.000
Expected N        1278   487   3420
Missing N         1022   231   3164

Model converged in 82 + 666 iterations
Fitted using 164 p-values. 256 supplied, 171 significant (ODR = 0.67, 95% CI [0.61, 0.72]).
Q = -138.47, 95% CI[-162.26, -110.30]
```

Plot the results:



Sensitivity analysis 2

We conduct a z-curve analysis replacing p-values reported as $p < 0.05$ for $p < 0.25$

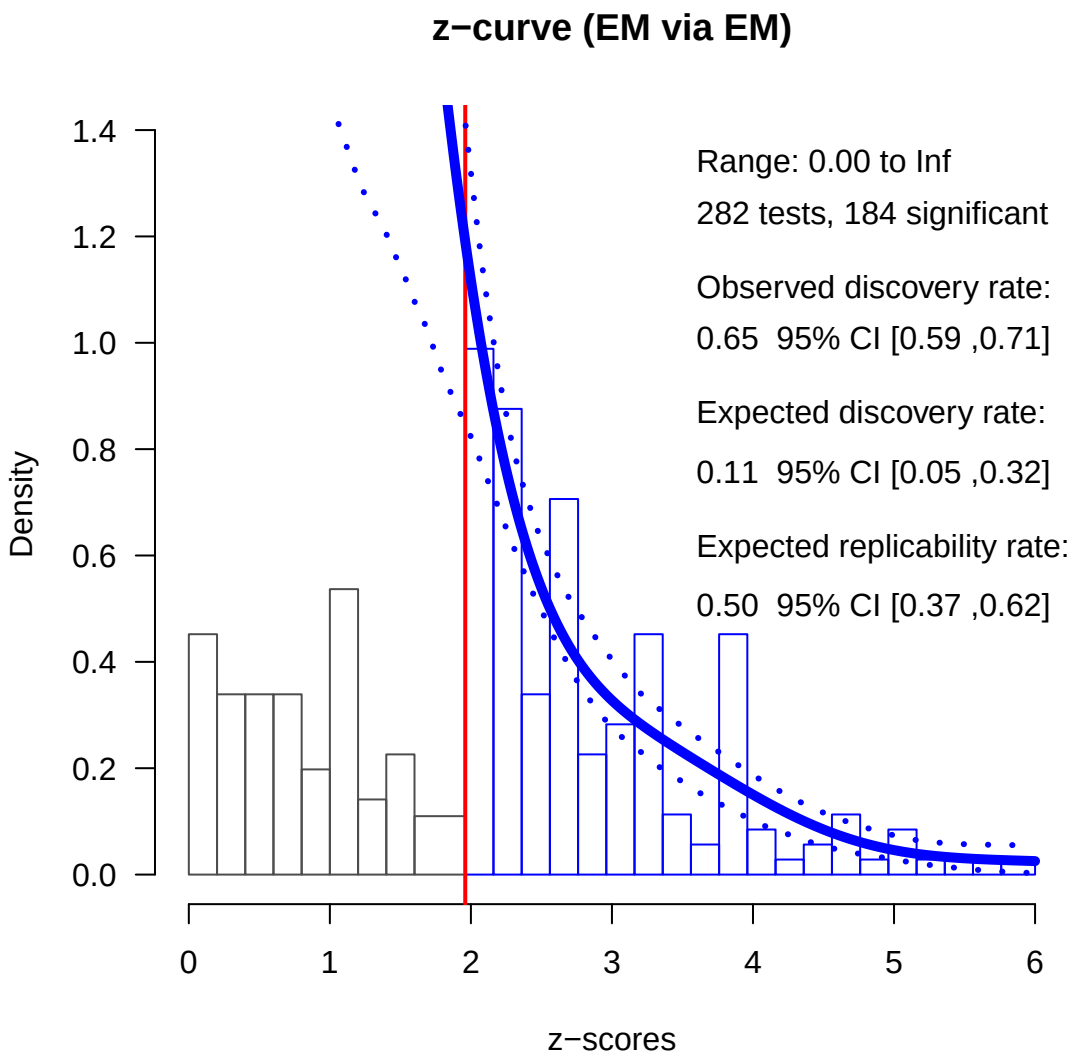
```
Call:
zcurve(p = combined_pvalues)

model: EM via EM
```

```
              Estimate  l.CI   u.CI
ERR              0.496 0.365  0.622
EDR              0.109 0.050  0.317
Soric FDR        0.429 0.113  1.000
File Drawer R    8.156 2.151 19.000
Expected N        1685   580   3680
Missing N         1403   298   3398

Model converged in 12 + 10 iterations
Fitted using 177 p-values. 282 supplied, 184 significant (ODR = 0.65, 95% CI [0.59, 0.71]).
Q = -162.12, 95% CI[-185.09, -133.17]
```

Plot the results:



Sensitivity analysis 3

We conduct a z-curve analysis replacing p-values reported as $p > 0.05$ for $p = 0.25$

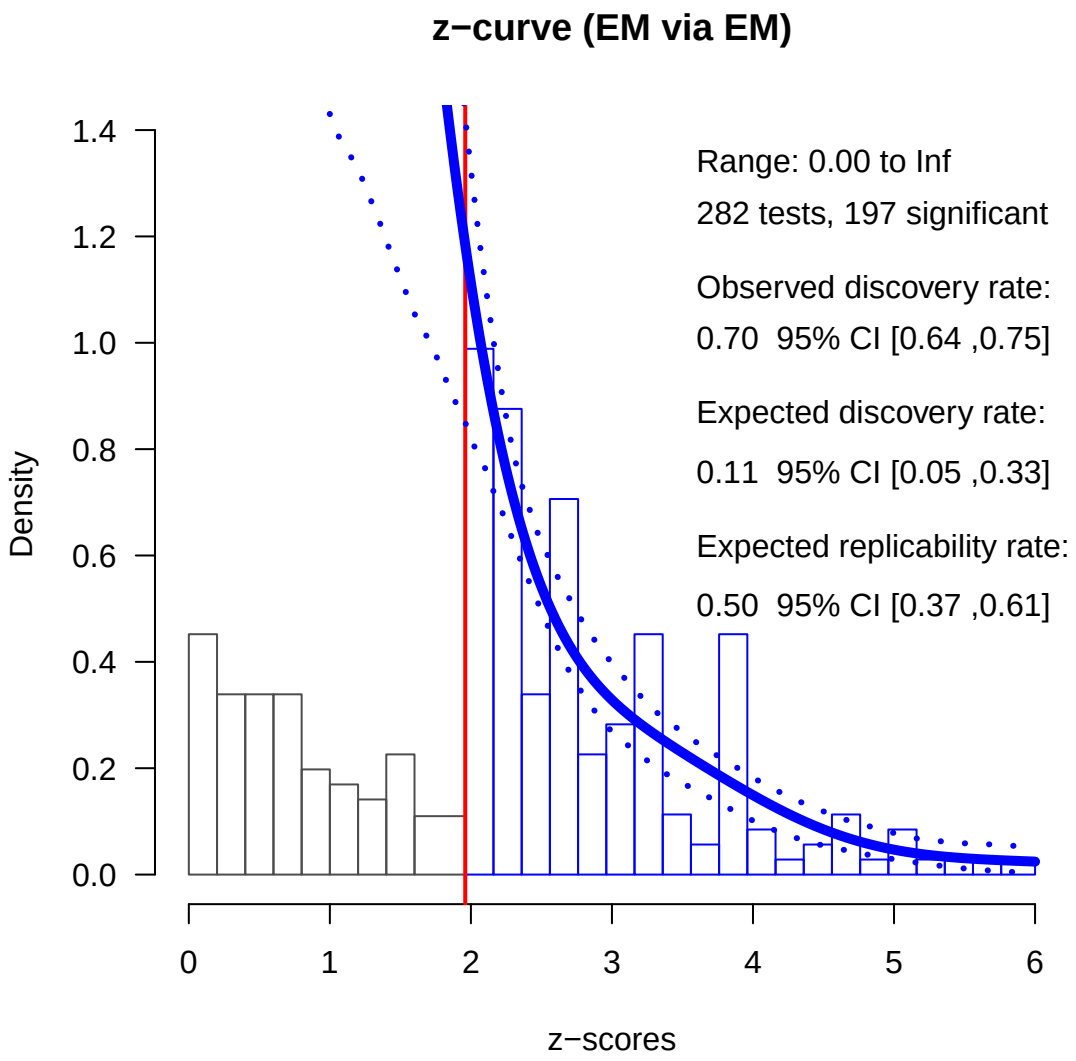
```
Call:
zcurve(p = combined_pvalues)

model: EM via EM
```

```
              Estimate  l.CI   u.CI
ERR              0.496 0.372  0.612
EDR              0.111 0.050  0.327
Soric FDR        0.421 0.108  1.000
File Drawer R    8.006 2.056 19.000
Expected N        1774   602   3940
Missing N         1492   320   3658

Model converged in 8 + 708 iterations
Fitted using 177 p-values. 282 supplied, 197 significant (ODR = 0.70, 95% CI [0.64, 0.75]).
Q = -162.11, 95% CI[-185.90, -134.84]
```

Plot the results:



Sensitivity analysis 4

We conduct a z-curve analysis replacing p-values reported as $p > 0.05$ for $p = 0.25$ and replacing p-values reported as $p < 0.05$ for 0.05

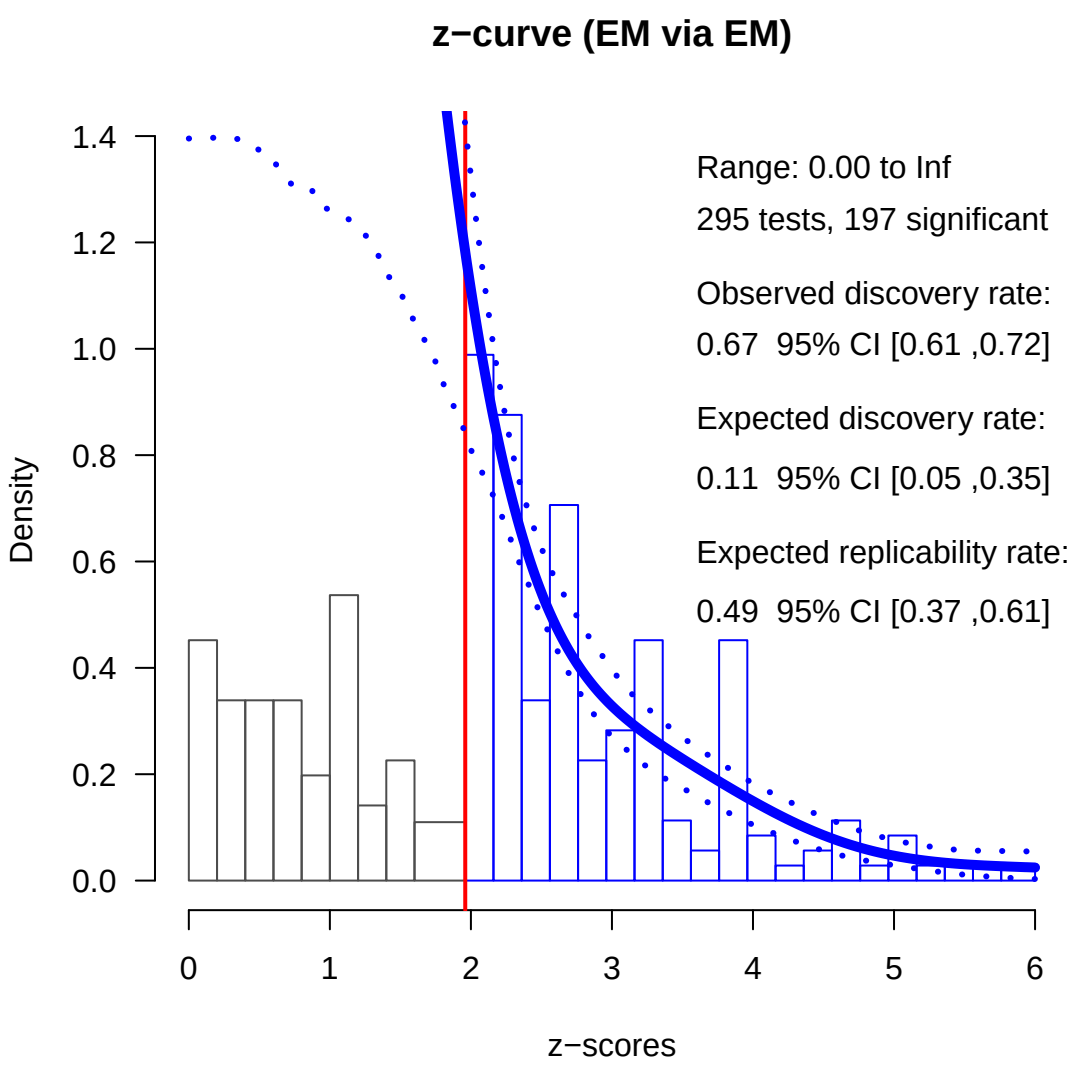
```
Call:
zcurve(p = combined_pvalues)

model: EM via EM
```

```
              Estimate  l.CI   u.CI
ERR              0.495 0.368  0.612
EDR              0.112 0.050  0.350
Soric FDR        0.418 0.098  1.000
File Drawer R    7.941 1.860 19.000
Expected N        1761   563   3940
Missing N         1466   268   3645

Model converged in 17 + 988 iterations
Fitted using 177 p-values. 295 supplied, 197 significant (ODR = 0.67, 95% CI [0.61, 0.72]).
Q = -162.11, 95% CI[-187.27, -133.07]
```

Plot the results:


z−curve (EM via EM)
Density
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
z−scores
Range: 0.00 to Inf
295 tests, 197 significant
Observed discovery rate:
0.67 95% CI [0.61 ,0.72]
Expected discovery rate:
0.11 95% CI [0.05 ,0.35]
Expected replicability rate:
0.49 95% CI [0.37 ,0.61]