Methodological Detail Appendix: Tighter Nets for Smaller Fishes? Mapping the Development of Statistical Practices in Consumer Research Between 2011 and 2018

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The following skritp runs all analyses reported in the manuscript "Tighter Nets for Smaller Fishes? Mapping the Development of Statistical Practices in Consumer Research Between 2011 and 2018".

To re-run the analyses make sure that the required packages are installed and the data files 'Data.csv' with all arythmically coded manuscritpts, 'Datahandcoded.csv' with all handcoded articles and "simulate-dresults.Rdata" with the simulations are in your working directory.

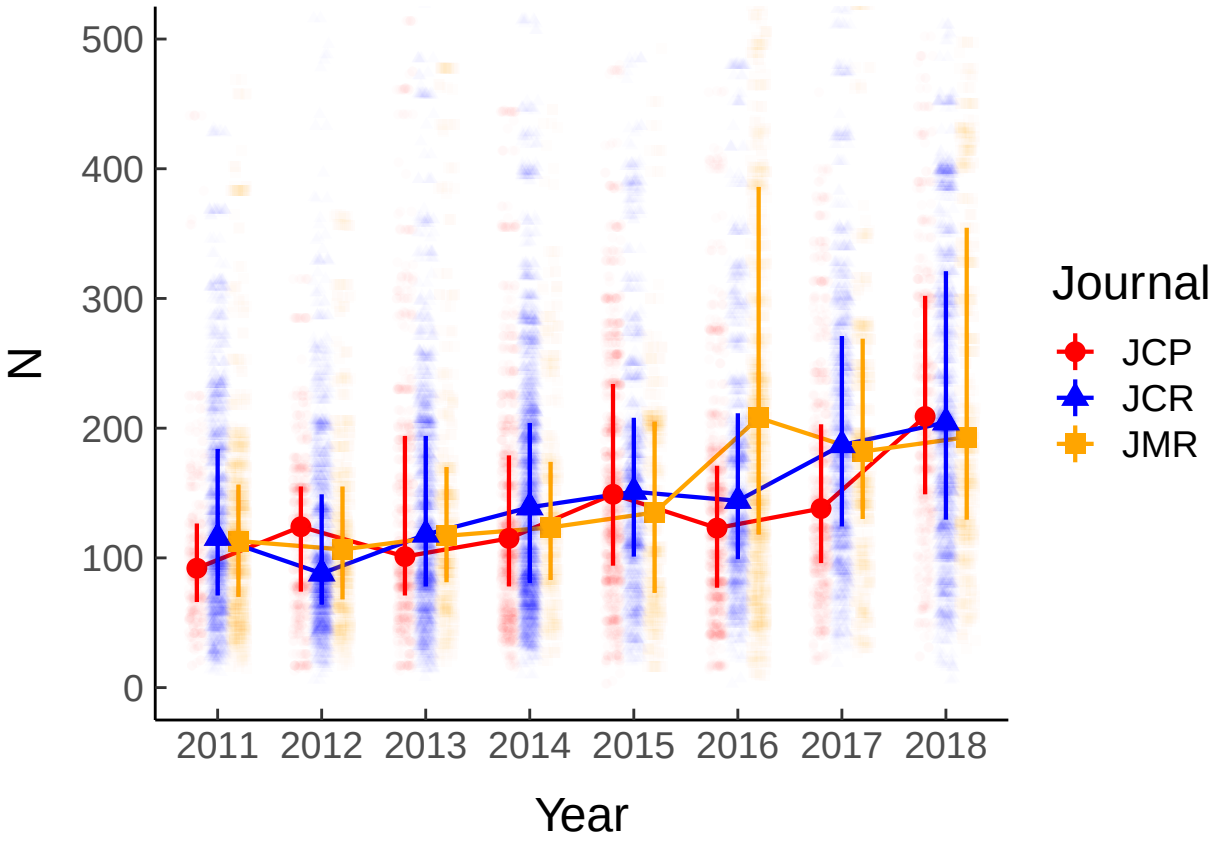
Preparation

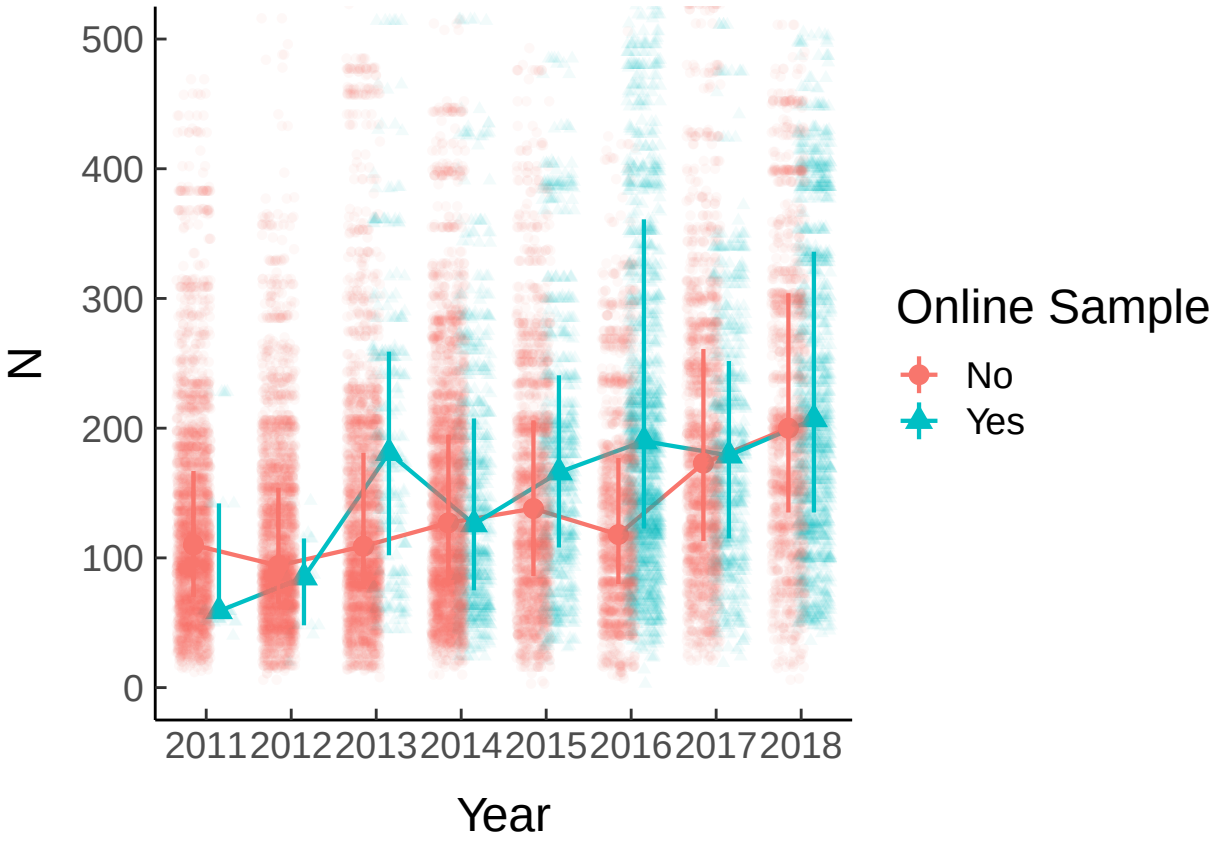
Development of the sample size over time

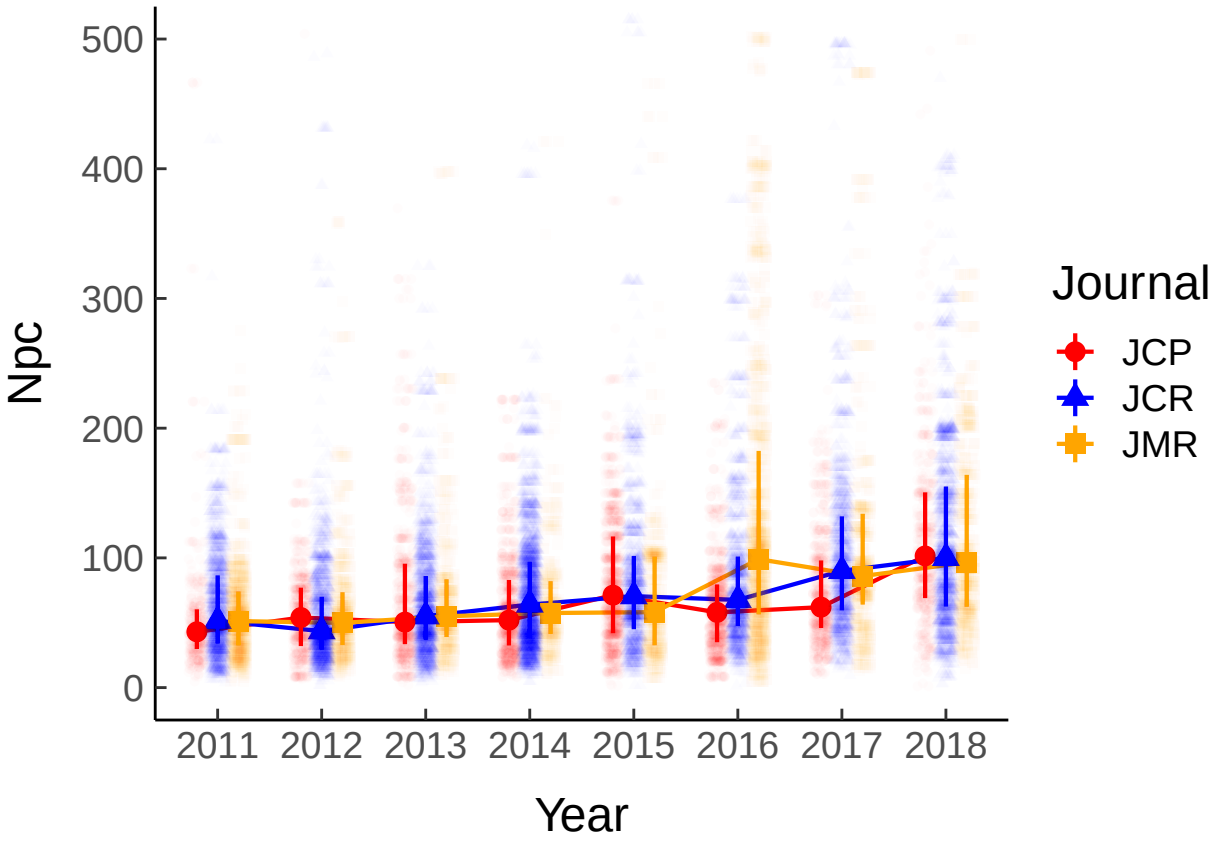
Calculation of the sample size for the F-test:

Assuming that most of the test compare independent groups we approximated the sample sizes via
$N = df_2 + df_1 + 1$
K = Number of groups
$df_1 = K - 1$
$df_2 = N - K$

Calculation of the sample size for the t-test: As for the F-tests we assumed that most of the studies represent manipulations between subjects. Thus we approximated the total sample size with the df of the t-tests:
$N = df + 2$


500
400
300
200
100
0
N
2011
2012
2013
2014
2015
2016
2017
2018
Year
Journal
JCP
JCR
JMR


500
400
300
200
100
0
N
2011
2012
2013
2014
2015
2016
2017
2018
Year
Online Sample
No
Yes



Test the developement of sample sizes over time with a mixed mdel analysis

```
## Fitting 6 (g)lmer() models:
## [......]
```

		2.5 %	97.5 %
(Intercept)	4.463	3.924	4.625
Year	0.1	0.038	0.162
Mturk	0.21	-0.11	0.53
Journal1	-0.106	-0.228	0.017
Journal2	-0.014	-0.119	0.092
Year:Mturk	-0.013	-0.066	0.04
Year:Journal1	0.012	-0.012	0.037
Year:Journal2	0.004	-0.018	0.026

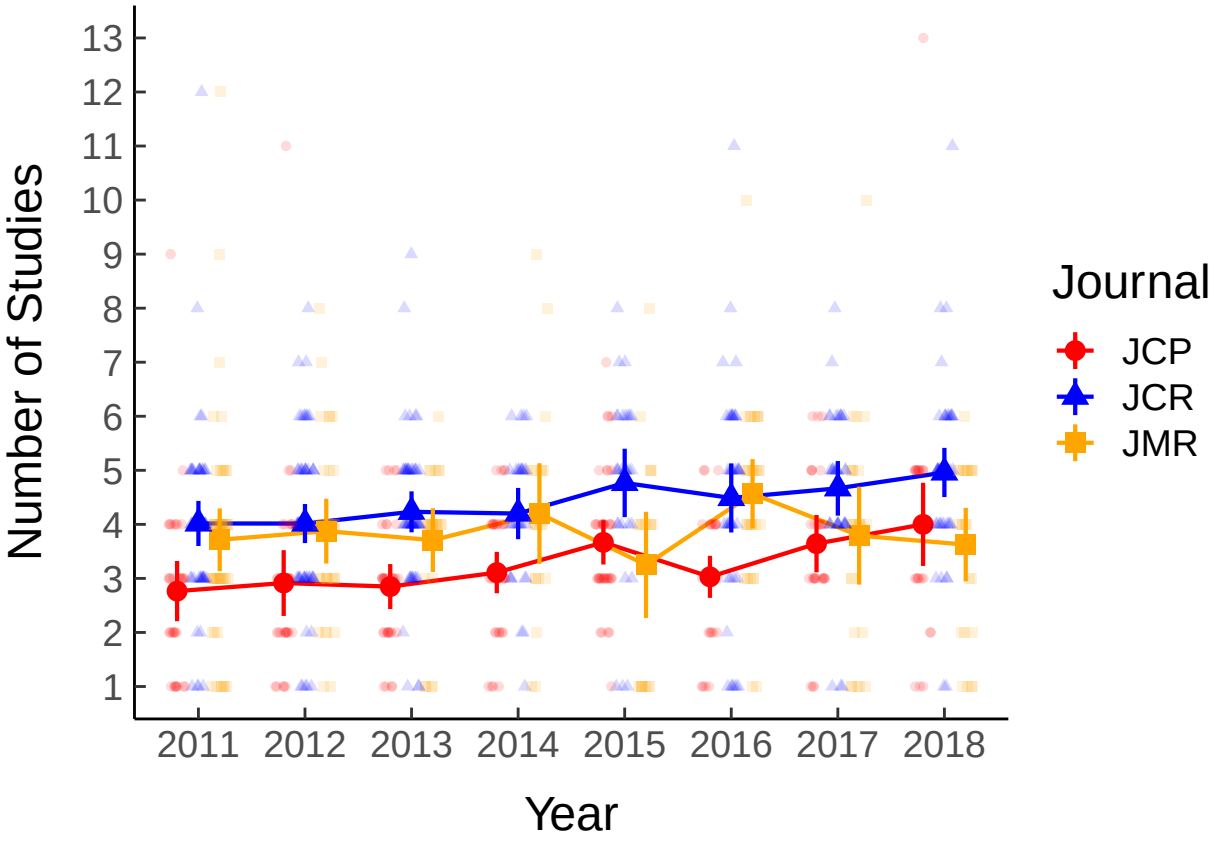
Test the developement of sample sizes per cell over time with a mixed mdel analysis

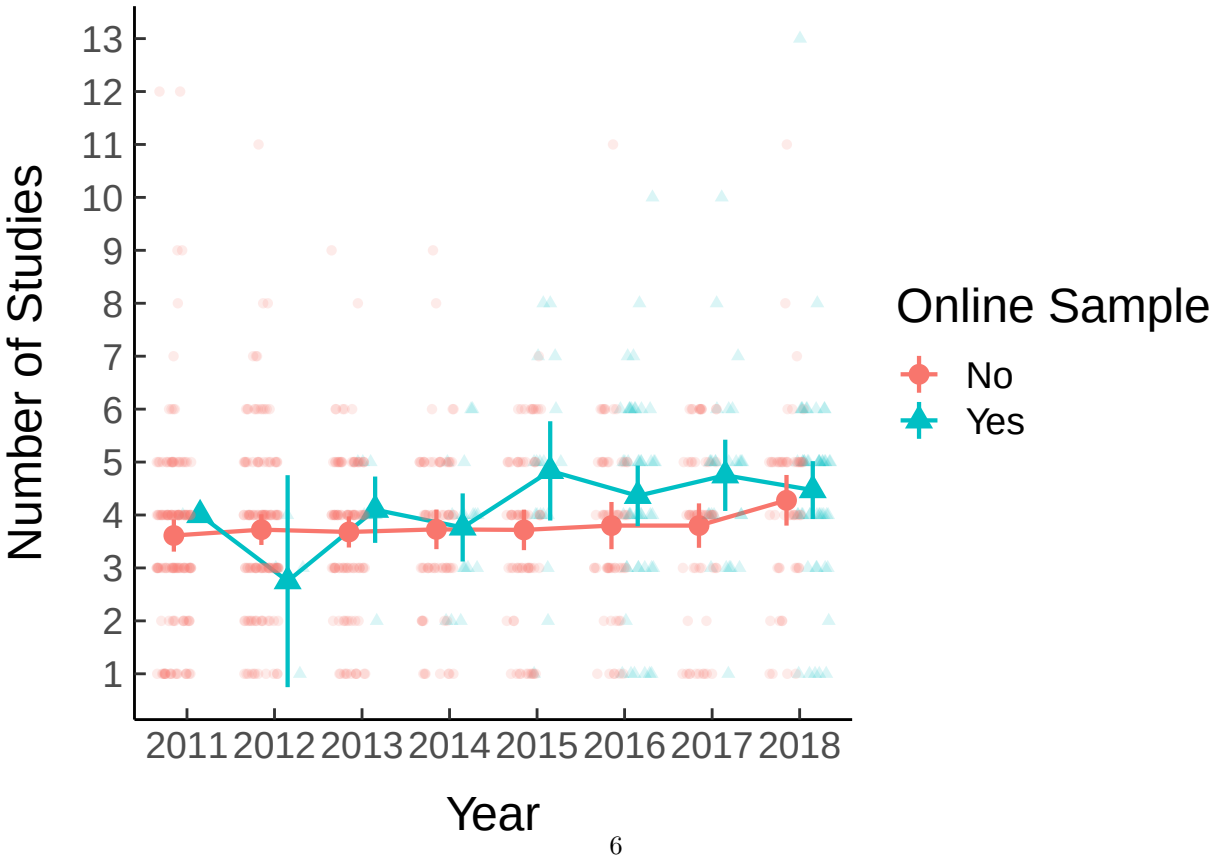
```
## Fitting 6 (g)lmer() models:
## [......]
```

		2.5 %	97.5 %
(Intercept)	3.872	3.276	3.947

		2.5 %	97.5 %
Year	0.082	0.022	0.141
Mturk	0.141	-0.165	0.446
Journal1	-0.093	-0.21	0.025
Journal2	-0.008	-0.109	0.093
Year:Mturk	0.001	-0.05	0.051
Year:Journal1	0.01	-0.014	0.034
Year:Journal2	0.007	-0.014	0.028

Development of the number of reported studies over time





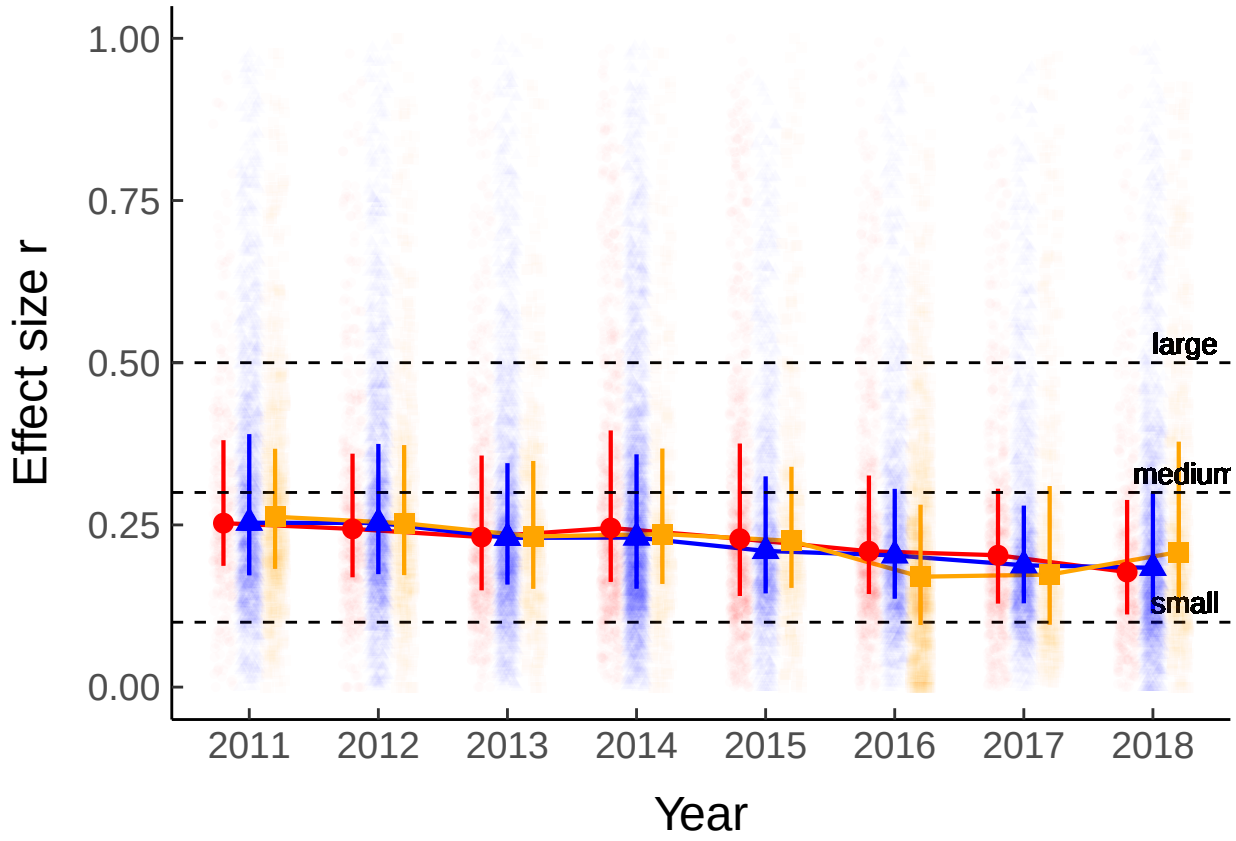
Test the development of the number of reported studies with a Poisson regression

model

		2.5 %	97.5 %
(Intercept)	0.916	0.539	1.286
Year	0.029	0.006	0.053
Mturk1	0.093	-0.265	0.459
Journal1	-0.474	-0.808	-0.141
Journal2	0.131	-0.145	0.406
Year:Mturk1	-0.008	-0.031	0.014
Year:Journal1	0.022	-0.001	0.045
Year:Journal2	0.001	-0.018	0.020

Development of effect sizes

The effect sizes of the F, ω^2, and t-test, d, were transformed to the commmon r-scale, to be analyzed and plotted together.

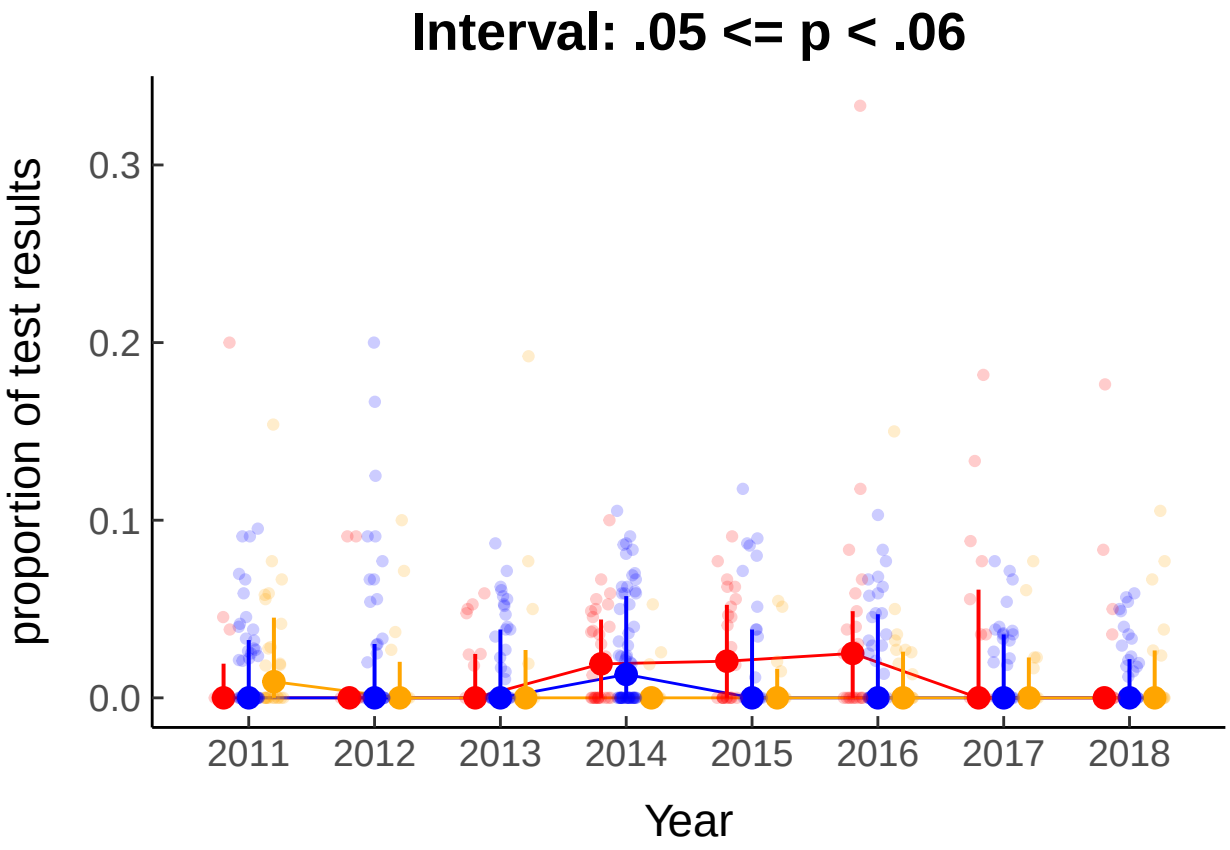


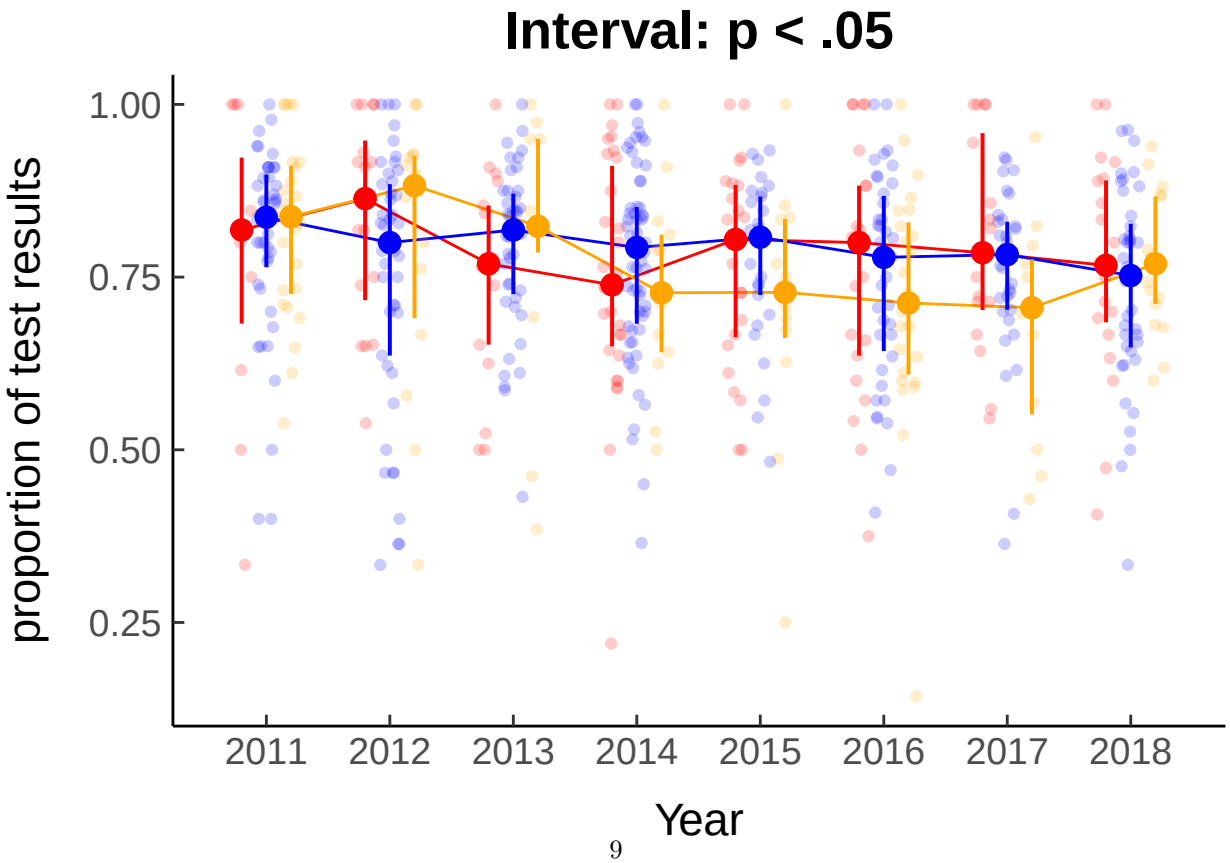
Test the development of effect sizes with a mixed model

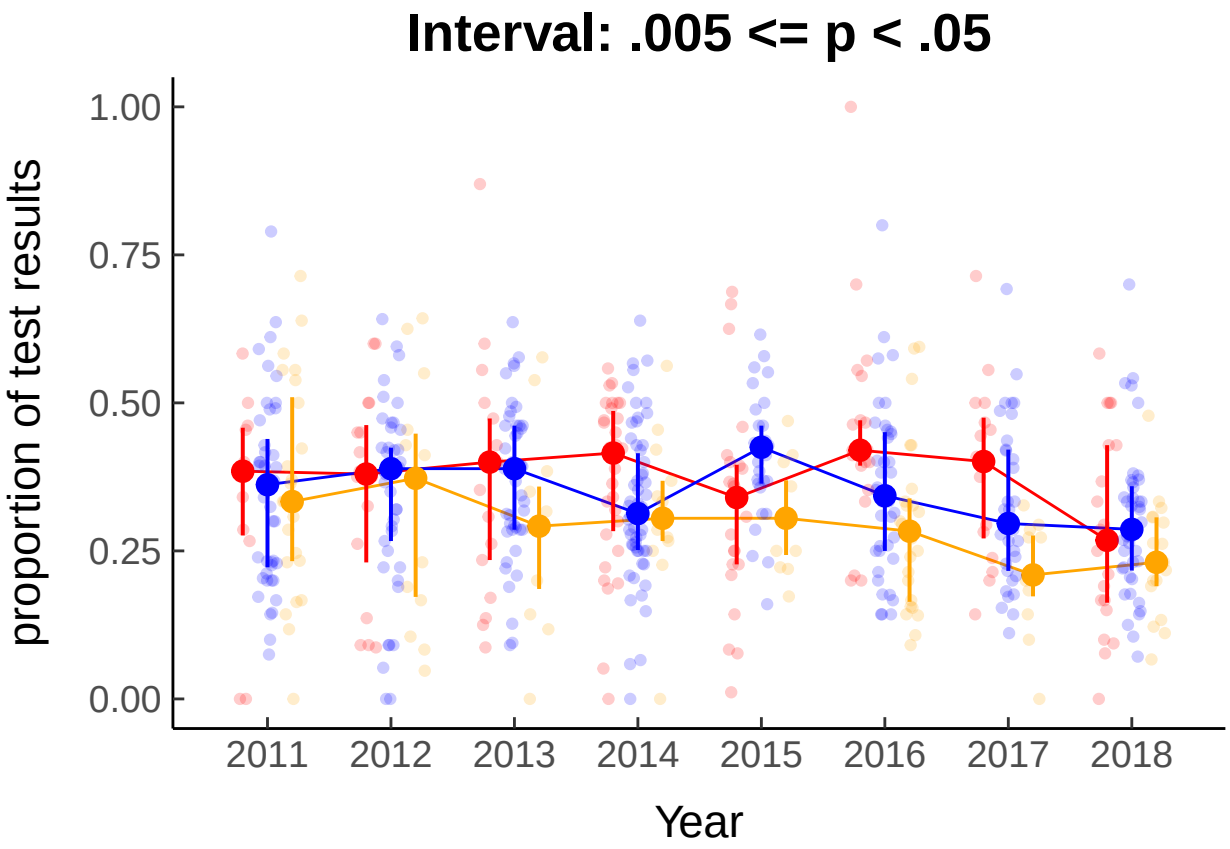
```
## Fitting 6 (g)lmer() models:
## [......]
```

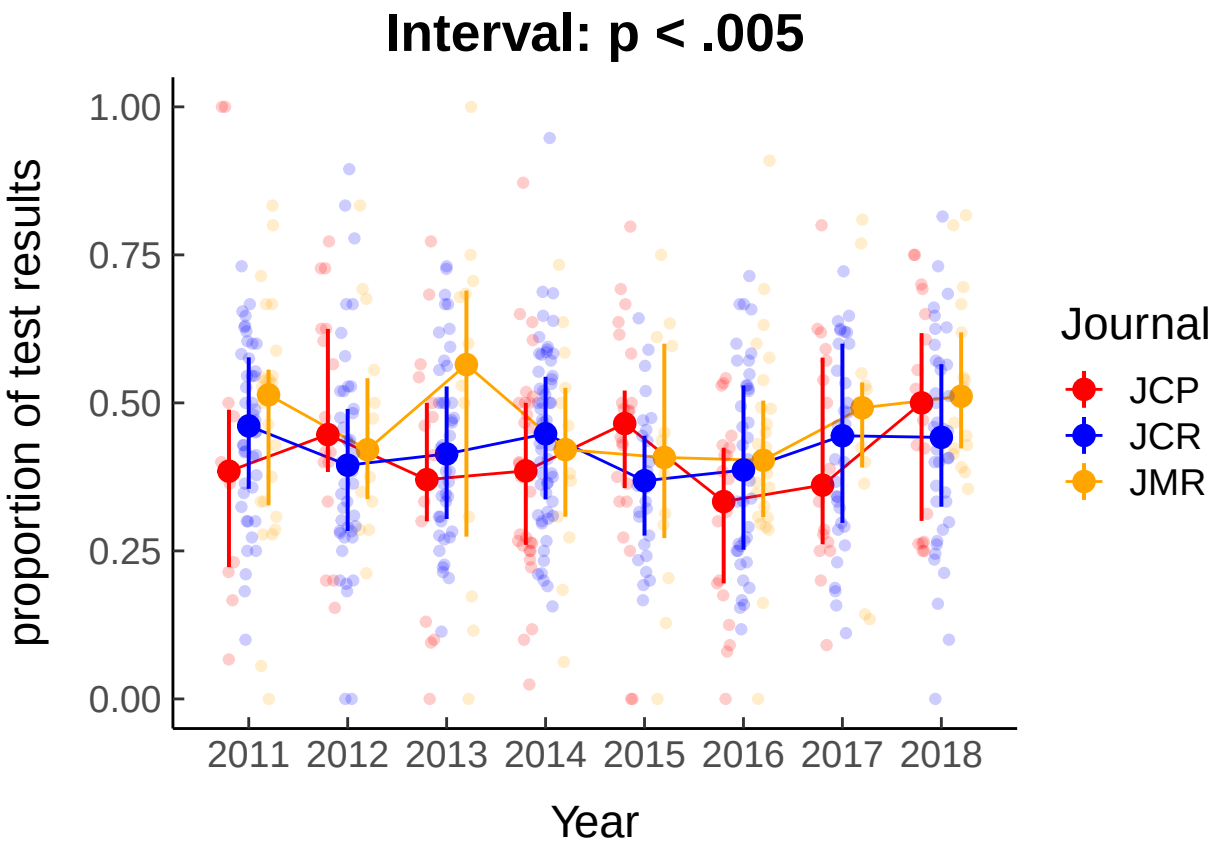
		2.5 %	97.5 %
(Intercept)	0.247	0.23	0.265
Year	-0.004	-0.007	-0.001
Journal1	0.004	-0.01	0.018
Journal2	0.002	-0.01	0.013
Mturk1	0.013	-0.005	0.03
Year:Journal1	-0.001	-0.003	0.002
Year:Journal2	-0.001	-0.004	0.001
Year:Mturk1	-0.001	-0.003	0.002

Development of the distribution of p-values






Interval: .005 <= p < .05
proportion of test results
1.00
0.75
0.50
0.25
0.00
2011
2012
2013
2014
2015
2016
2017
2018
Year



Test the distribution of proportion in the different intervals of the p-value distribution with linear models

```
## [1] "Interval: .05 <= p < .06"
```

		2.5 %	97.5 %
(Intercept)	0.022	0.015	0.028
Year	0.000	-0.001	0.001
Journal1	-0.005	-0.015	0.006
Journal2	0.003	-0.005	0.012
Year:Journal1	0.002	0.000	0.004
Year:Journal2	-0.001	-0.002	0.001

```
## [1] "Interval:p < .05"
```

		2.5 %	97.5 %
(Intercept)	0.799	0.769	0.828
Year	-0.008	-0.014	-0.002
Journal1	-0.018	-0.063	0.027
Journal2	-0.001	-0.037	0.035
Year:Journal1	0.006	-0.003	0.015
Year:Journal2	0.001	-0.006	0.008

```
## [1] "Interval: .005 <= p < .05"
```

		2.5 %	97.5 %
(Intercept)	0.368	0.339	0.398
Year	-0.008	-0.014	-0.002
Journal1	0.000	-0.044	0.045
Journal2	-0.002	-0.038	0.033
Year:Journal1	0.006	-0.003	0.015
Year:Journal2	0.003	-0.004	0.010

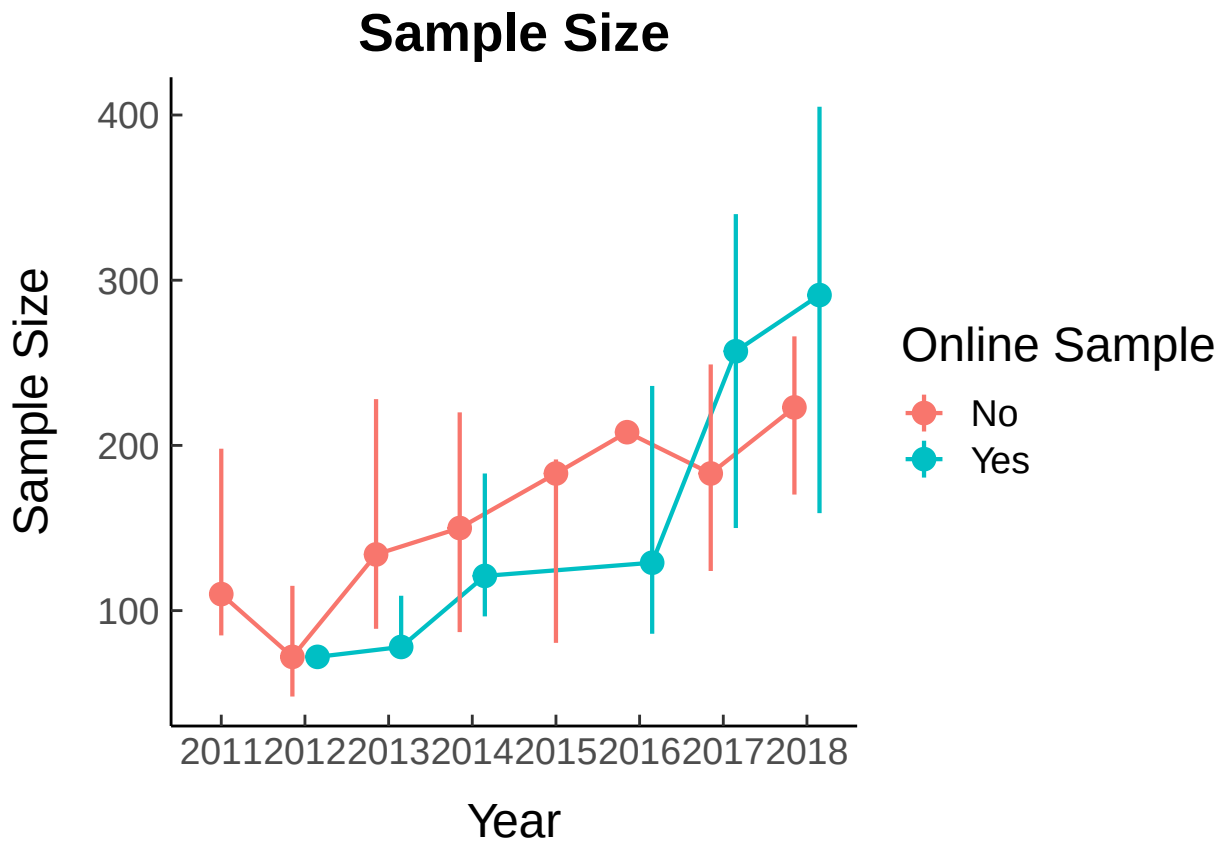
```
## [1] "Interval: p < .005"
```

		2.5 %	97.5 %
(Intercept)	0.430	0.395	0.465
Year	0.000	-0.007	0.007
Journal1	-0.018	-0.072	0.036
Journal2	0.002	-0.041	0.044
Year:Journal1	0.000	-0.011	0.010
Year:Journal2	-0.002	-0.011	0.006

read and prepare data for hand coded manuscripts

```
## integer(0)
```

```
##         1         2         3         4         5         6         7
## 0.8741259 0.8260870 0.9405204 0.9522388 0.9636364 0.9534884 0.9576923
##         8
## 0.8104089
```




```
## Fitting 6 (g)lmer() models:
## [......]
```

		2.5 %	97.5 %
(Intercept)	3.696	3.013	4.58
Year	0.165	0.023	0.313
Mturk	0.474	0.027	0.925
Journal	0.109	-0.181	0.399
Year:Mturk	-0.077	-0.146	-0.01
Year:Journal	0.014	-0.042	0.07

Simulation of the development of the p-value distribution over time

To run the following simulations, change eval = F to eval = T, or run the chunk individually in R. The simulations take a very long time to be completed. that is why the following summaries of the bestfitting results is based on a previsously ran simulation.

Best fitting conditionss

```
##      cond    hack         d1true dtrue time     d_obs   .05 .005.05  .005
## 2314  138   0.2 0 power T1 = .75  0.11    1 0.2575641 0.813   0.341 0.472
## 2321  240   0.4 0 power T1 = .75  0.11    1 0.2642993 0.854   0.357 0.497
## 2513  651 0.2 0.1 power T1 = .75  0.12    1 0.2554687 0.810   0.347 0.463
```

```
## 2519  243   0.4 0 power T1 = .75  0.12    1 0.2642949 0.861   0.377 0.484
##            2_d 2_.05 2_.005.05 2_.005
## 2314 0.1951157 0.810     0.302  0.508
## 2321 0.1968113 0.809     0.294  0.515
## 2513 0.1929293 0.810     0.300  0.510
## 2519 0.1904616 0.780     0.307  0.473

## [1] 0

## [1] 0

## [1] 4
```

Best fitting conditions for central hypothesis tests

```
##      cond    hack          d1true dtrue time     d_obs   .05 .005.05  .005
## 1883 2681 0.7 0.6 power T1 = .65   0.09    1 0.2590725 0.886   0.437 0.449
## 2278 2432 0.7 0.5 power T1 = .65   0.11    1 0.2626222 0.895   0.436 0.459
## 3129 2394 0.6 0.5  power T1 = .75  0.15    1 0.2683632 0.897   0.406 0.491
## 3137 2700 0.7 0.6  power T1 = .75  0.15    1 0.2700854 0.910   0.411 0.499
##            2_d 2_.05 2_.005.05 2_.005
## 1883 0.1970185 0.886     0.393  0.493
## 2278 0.1930731 0.875     0.404  0.471
## 3129 0.1925944 0.849     0.384  0.465
## 3137 0.1970936 0.892     0.404  0.488

## [1] 0

## [1] 0

## [1] 4
```