# Wrangle

**Does sleep spindle-slow oscillation coupling contribute to memory consolidation during sleep? A meta-analysis and methodological review**

University of Massachusetts Amherst SomNeuro Lab

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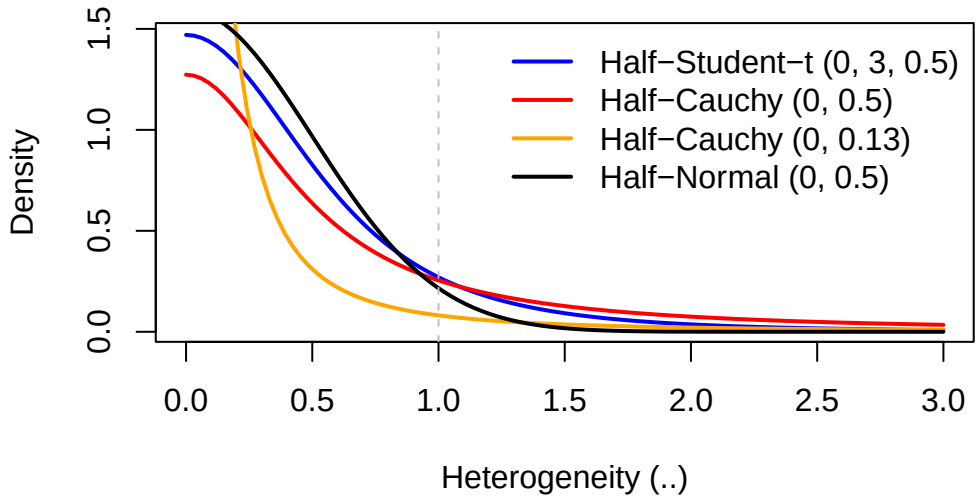
```
psycbul <- readxl::read_excel("/Users/thea/Downloads/jopd-5-33-s2.xlsx")
```

```
psycbul_r <- psycbul |>
  filter(grepl("Pearson's r", Type_of_ES))
```

```
knitr::kable(favstats(psycbul_r$tau))
```

| | min | Q1 | median | Q3 | max | mean | sd | n | missing |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0.05 | 0.12 | 0.18 | 0.52 | 0.1267 | 0.0968 | 498 | 42 |

```
library(extraDistr)
curve(dht(x, 3, 0.5), 0, 3, col = "blue", ylab = "Density", xlab = "Heterogeneity (\u03c4)
curve(dhcauchy(x, 0.5), 0, 3, col = "red", add = TRUE, lwd = 2)
curve(dhcauchy(x, 0.13), 0, 3, col = "orange", add = TRUE, lwd = 2)
curve(dhnorm(x, 0.5), 0, 3, col = "black", add = TRUE, lwd = 2)
abline(v = 1, col = "gray", lty = 2)
legend("topright", legend = c("Half-Student-t (0, 3, 0.5)", "Half-Cauchy (0, 0.5)", "Half-
```

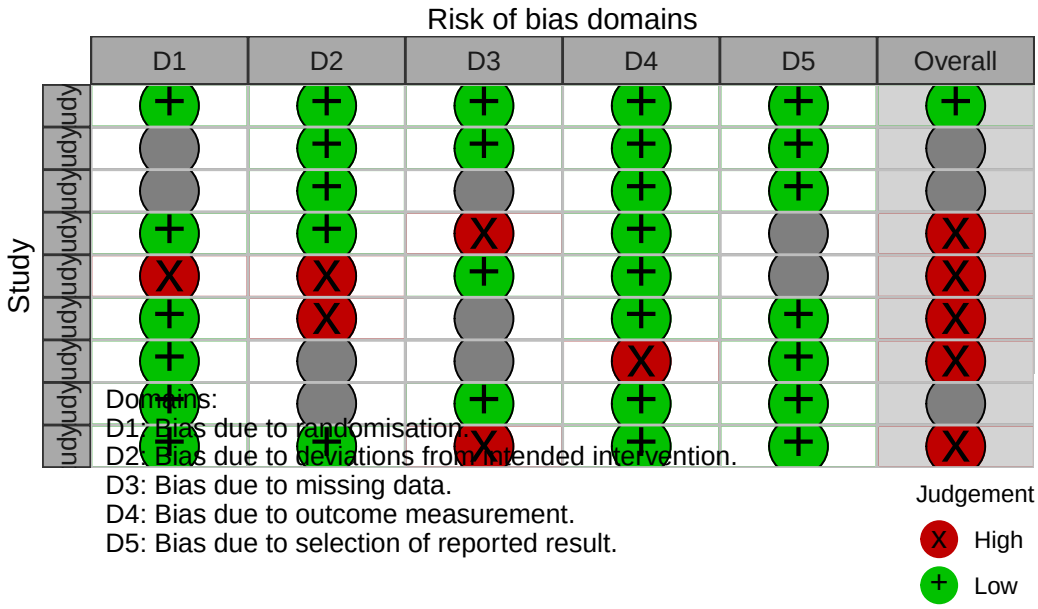



```r
library(robvis)
data_rob2 <- read.csv("~/Desktop/ROB2_example.csv")
rob_summary(data_rob2, tool = "ROB2", overall = "TRUE", weighted = "FALSE")
```


```r
rob_traffic_light(data_rob2, tool = "ROB2", psize = 10)
```

```
Warning: Removed 12 rows containing missing values (`geom_point()`).
```

```
Removed 12 rows containing missing values (`geom_point()`).
```




## TMR Memory Retention Rate

$$MRR(\%) = \frac{\text{Corrected Rate}_{\text{post.sleep}}}{\text{Corrected Rate}_{\text{pre.sleep}}} \times 100\% \tag{4}$$

where

$$\text{Corrected Rate}(\%) = \frac{\text{Hit} - \text{False Alarm}}{\text{Hit}} \times 100\%$$