

Practical: Network meta-analysis of composite interventions

Oxford 2019

R packages

We will use the **netmeta** command to run all network meta-analyses.

```
library(netmeta)
```

Connected networks

Load the example dataset:

```
data(Linde2016)

# Only consider studies including Face-to-face PST (to reduce
# runtime of example)
#
face <- subset(Linde2016, id %in% c(16, 24, 49, 118))
```

The data comes from a network meta-analysis on the comparative effectiveness of psychological treatments for depressive disorders in primary care. The outcome was response to treatment.

Have a look at the dataset and try to identify the treatments being compared, and the components.

Now let us conduct a regular NMA.

```
net1 <- netmeta(lnOR, selnOR, treat1, treat2, id,
               data = face, ref = "placebo",
               sm = "OR", comb.fixed = FALSE)
summary(net1)
forest(net1, xlim = c(0.2, 50))
```

Does the additivity assumption seem plausible in this example?

Let us perform a component NMA.

```
nc1 <- netcomb(net1, inactive = "placebo")
summary(nc1)
forest(nc1, xlim = c(0.2, 50))
```

What do you observe?

Disconnected networks - optional exercise

For this exercise we will use an artificial dataset.

```

# Artificial dataset
#
t1 <- c("A + B", "A + C", "A"      , "A"      , "D", "D", "E")
t2 <- c("C"      , "B"      , "B + C", "A + D", "E", "F", "F")
#
mean    <- c(4.1, 2.05, 0, 0, 0.1, 0.1, 0.05)
se.mean <- rep(0.1, 7)
#
study <- paste("study", c(1:4, 5, 5, 5))
#
dat <- data.frame(mean, se.mean, t1, t2, study,
                  stringsAsFactors = FALSE)

trts <- c("A", "A + B", "A + C", "A + D",
          "B", "B + C", "C", "D", "E", "F")

```

Use the `netconnection` function to check whether the network is connected

```
netconnection(t1, t2, study)
```

How many disconnected networks are there?

Now let's fit the component NMA model and look at results.

```

dc1 <- discomb(mean, se.mean, t1, t2, study, seq = trts)
dc1

forest(dc1, ref = "F")

```