

# The Number Needed To Treat (NNT)

- Effect sizes such as Cohen's  $d$ , Hedges'  $g$ , odds ratios or relative risks are often **difficult to interpret from a practical standpoint**.
- How can we **communicate what an effect means** to patients, public officials, medical professionals, or other stakeholders?
- The NNT signifies **how many additional patients must receive the treatment under study** to prevent one additional negative event (e.g., relapse) or achieve one additional positive event
  - If  $NNT = 3$ , for example, we can say that three individuals must receive the treatment to avoid one additional relapse case; or that three patients must be treated to achieve one additional case of reliable symptom remission

# The Number Needed To Treat (NNT)

The NNT is defined as the **inverse of the absolute risk reduction**:

$$NNT = (p_{\text{treat}} - p_{\text{control}})^{-1} = ARR^{-1}$$

It is also possible to convert Hedges'  $g$  to an NNT, provided we have a good “guesstimate” of  $p_{\text{control}}$  (Furukawa & Leucht, 2011)

When the treatment has a negative effect, we speak of the number needed to harm (NNH or NNTH).

**The NNT is widespread in medical research, but not uncontroversial:**

- Lay people often misunderstand it (despite purportedly being an “intuitive” alternative to other effect size measures)
- It is not possible to calculate reliable standard errors (and confidence intervals) of NNTs, which means that they can not be pooled in meta-analyses.