**Depression**

- Bob is depressed and seeks treatment
  - A month later, is feeling better
  - Did the treatment work?
- Depressive symptoms fluctuate on their own
  - So Bob’s depression might have lifted without the treatment
    - *Spontaneous remission*
  - So we don’t know if the treatment worked

**Regression to the mean**

- Occurs when:
  1. A group is defined by extreme values on a variable, and
  2. That group is measured on the same variable again, later
- Other examples:
  - Remedial education programs
  - College admission
  - Praising good performance

**Evaluating depression therapy**

- *A meta-analysis*
  - A study of studies meeting a set of criteria
- 19 pharmacological studies, each with:
  - Pre/post, double-blind design
  - Placebo control group
- 19 psychotherapy studies, each with:
  - Pre/post design
  - Wait-list control group

**Diathesis-stress model**

- *Diathesis*: Set of risk factors
- *Stress*: Set of trigger factors
- Pathology arises when both are present
  - An interaction of two variables: The effect of one depends on the level of the other
**Depression**

- Multi-causal - Some combination of:
  - Environmental influences
  - Negative cognitions
  - Biological factors

- Any factor can be ...
  - diathesis or stress
  - a target for intervention

**Negative cognitions**

- Example: Negative **explanatory style**
  - Attributing bad experiences to internal, global, and stable causes
  - Internal: It’s my fault, not someone else’s
  - Global: I do everything wrong like this
  - Stable: It’s always been this way and always will be

- One intervention: **cognitive-behavioral therapy**
  - Designed to change habitual patterns of thinking and behavior

**Biological factors**

- One possible factor: Serotonin imbalance
  - But Kirsch’s studies raise important questions
  - And treatments should be effective immediately, but instead can take weeks

- Biomedical depression treatments include:
  - Electroconvulsive therapy (induces seizures)
  - Stimulation of Brodmann’s area 25
    - Subgenual cingulate cortex

  ![Area 25](image)

**Deep brain stimulation**

(Mayberg, Lozano, et al., 2005)

- Stimulating white matter **deactivates** nearby grey matter (somehow)
- Deactivating the grey matter in Area 25 affects other brain regions
  - Target areas include frontal lobes (cognition), hypothalamus (appetite), brain stem (sleep), insula (emotion, pain, body sense)

**What does it do?**