# Study Classification: Experiment or Observational Study

This study is an experiment, not an observational study. Key characteristics that make it an experiment include:

1) Random assignment: The participants were "randomly assigned" to receive either D-cycloserine or a placebo.

2) Control group: The study included a placebo group (10 people) that served as a control.

3) Manipulation of treatment: The researchers deliberately administered either D-cycloserine or a placebo to the participants, thus actively manipulating the independent variable.

4) Standardized conditions: All participants received exactly two therapy sessions, creating consistent experimental conditions across groups.

# Justification of Conclusion About Equivalence to Eight Sessions

The researchers would not be justified in concluding that D-cycloserine plus two therapy sessions is as beneficial as eight therapy sessions without the pill based solely on the results presented.

Reasons:

1) No direct comparison: The study did not include a group receiving eight therapy sessions without medication, which would be necessary for making this specific comparative claim.

2) Missing control group: To make this conclusion, researchers would need a third group that received the standard treatment (eight therapy sessions without medication).

3) Different scope: The study only demonstrated that D-cycloserine with two sessions is more effective than placebo with two sessions, not that it equals or exceeds the effectiveness of eight sessions.

# Problems with Non-Random Assignment

If therapists were allowed to choose which participants received D-cycloserine versus placebo (instead of using randomization), this could lead to incorrect conclusions due to:

1) Selection bias: Therapists might assign patients with better prognoses or milder acrophobia to the D-cycloserine group, creating an artificial treatment effect.

2) Confounding variables: Patient characteristics that influence improvement (such as severity of acrophobia, motivation, age) would not be evenly distributed between groups.

3) Therapist expectancy effects: Therapists who know which patients received the active drug might unconsciously provide better therapy or more encouragement to those patients.

4) Loss of internal validity: Without randomization, any observed differences between groups could be attributed to pre-existing differences between participants rather than to the treatment itself.