Validity and reliability:

• Valid assessment: measures what it’s supposed to measure

• Reliable assessment: measures the same thing consistently

• Trusted assessments: must be reliable and valid

Validity evidence:

1. … [SEE SLIDES]

Case study: treating chronic fatigue syndrome

• Can’t generalize results because we didn’t randomly select participants (sampling was biased)

• Sampling vs. census

Sampling biases:

• Convenience sampling

• … [SEE SLIDES]

Random sampling:

• Simple random sample: Randomly select from the population

• Stratified sample: sample from groups of similar observations

• Cluster sampling: clusters are usually not made up of homogeneous observations -> take random samples from random samples of clusters (?)

Observational studies vs. experiments:

• Observational studies: collect data in a way that doesn’t interfere with how the data arise

• Experiment: researchers randomly assign subjects to treatments to establish causal relationships

Principles of experimental design:

• Control

• Randomize

• Replicate

• Block: if there are variables/characteristics that we think might be related to the treatment, we want to block on those (group subjects into blocks based on these variables, and then randomize cases within each)

Other experimental terms:

• Placebo

• Placebo effect

• Blinding

• Double-blind