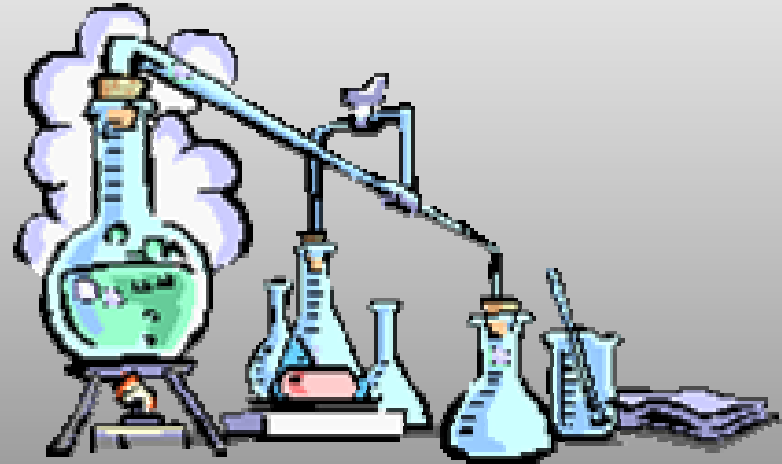


Single-Subject Designs

- Characterized by scientific rigor
- Can demonstrate causal relations
- Experimental design
 - Effects of different interventions (IVs) on the same subject
- Problems that are relatively rare can be studied



Single-Subject Designs

- A large number of observations collected from the subject
 - To control within-subject variability
- Focused on variables with considerable influence or effects
 - To enhance visibility of the association

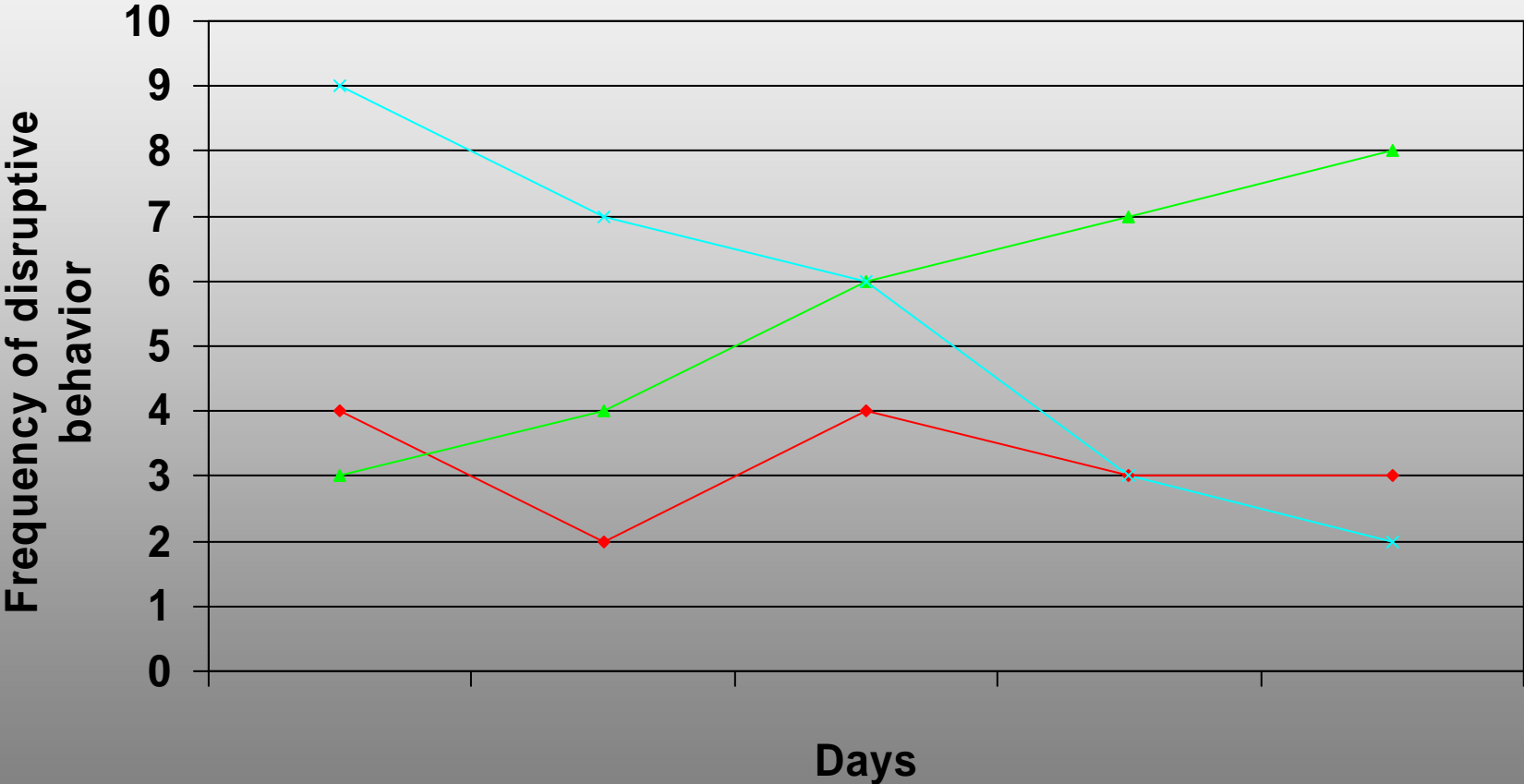
Single Subject Designs

- Similar to within-subjects design
 - Subjects exposed to multiple levels of the independent variable
- Data not averaged across subjects

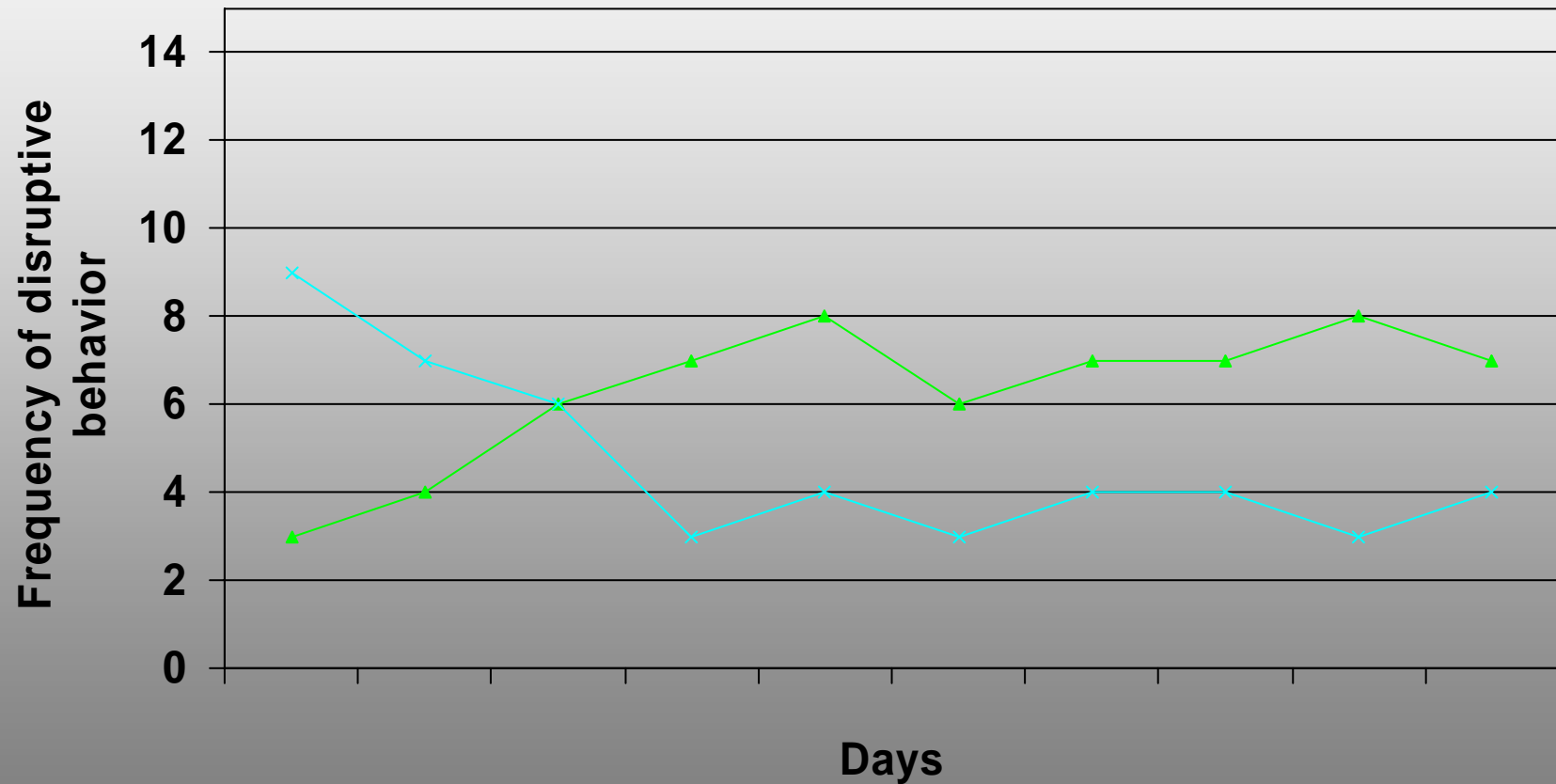
Baseline Design

- The Behavioral Baseline
 - Establishes the level of the dependent variable within each phase (baseline/intervention)
 - Assesses the amount of uncontrolled variability
 - A stable baseline allows one to make inferences about the effects of treatment

Baseline Slope



Establishing a Stable Baseline



Baseline Design

- Baseline Phase
- Intervention Phase
 - Continuous assessment during intervention
- Ethical issues in withholding treatment while establishing a baseline

Baseline Designs: Reversal Designs

AB

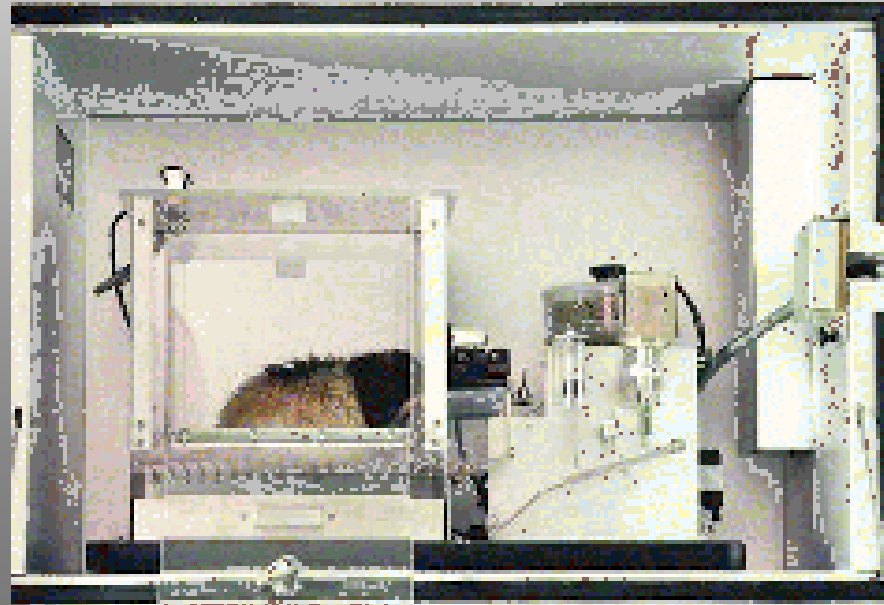
ABA

ABAB

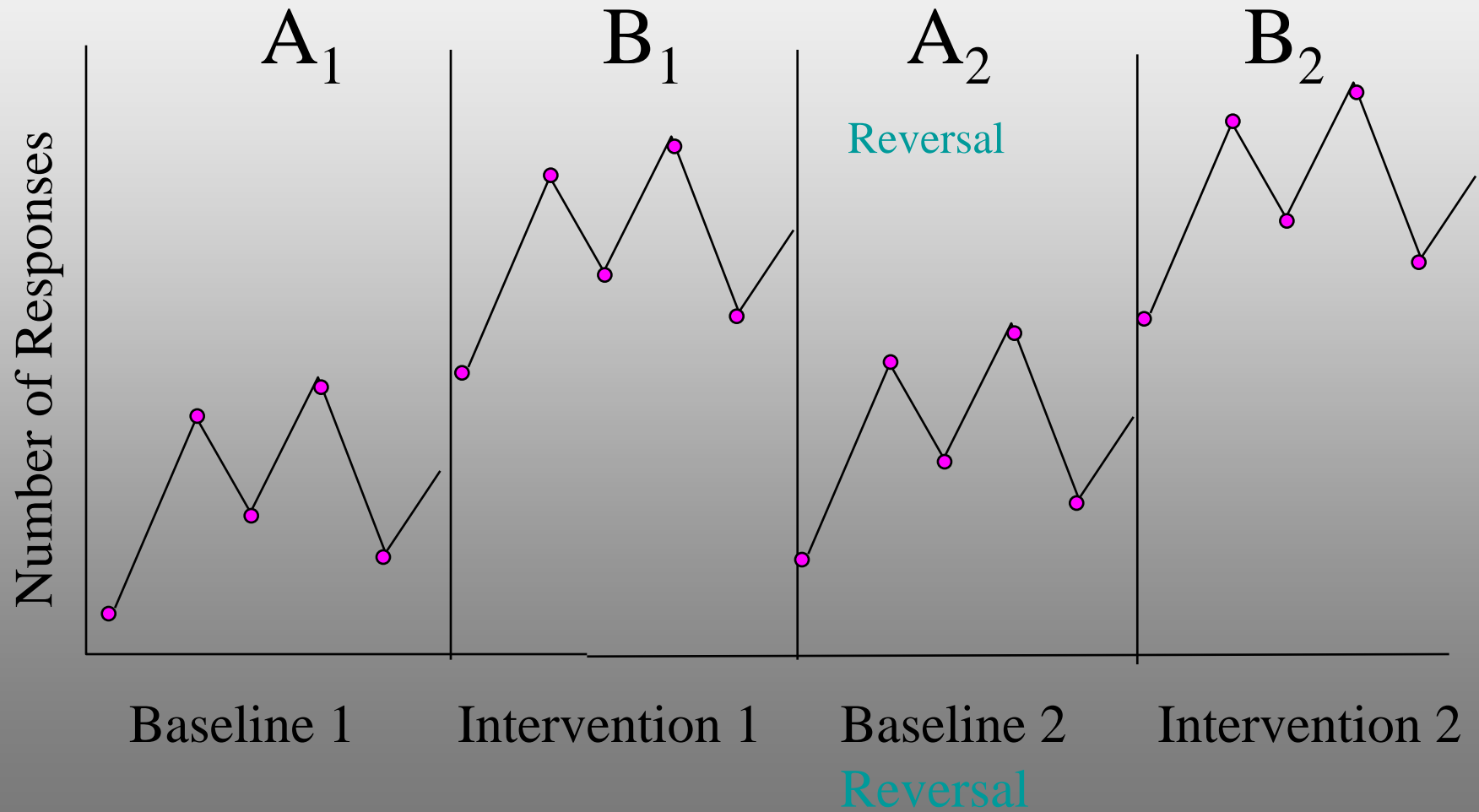
ABACABA, etc.

B.F. Skinner

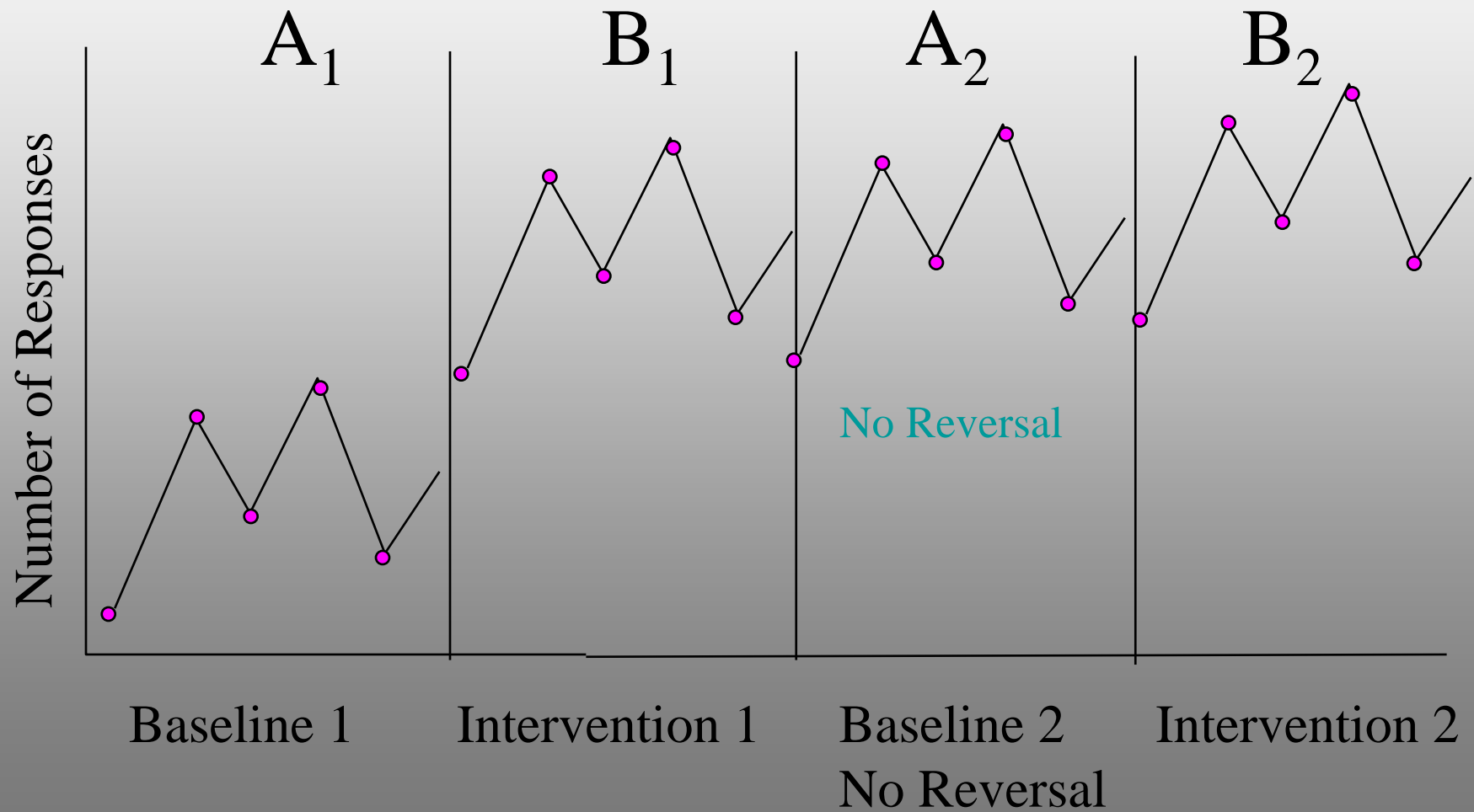
- Skinner and single subject “baseline” designs
 - Motor behavior of rats, pigeons, “Skinner Box”
 - Journal of Experimental Analysis of Behavior



Treatment Effect Illustration



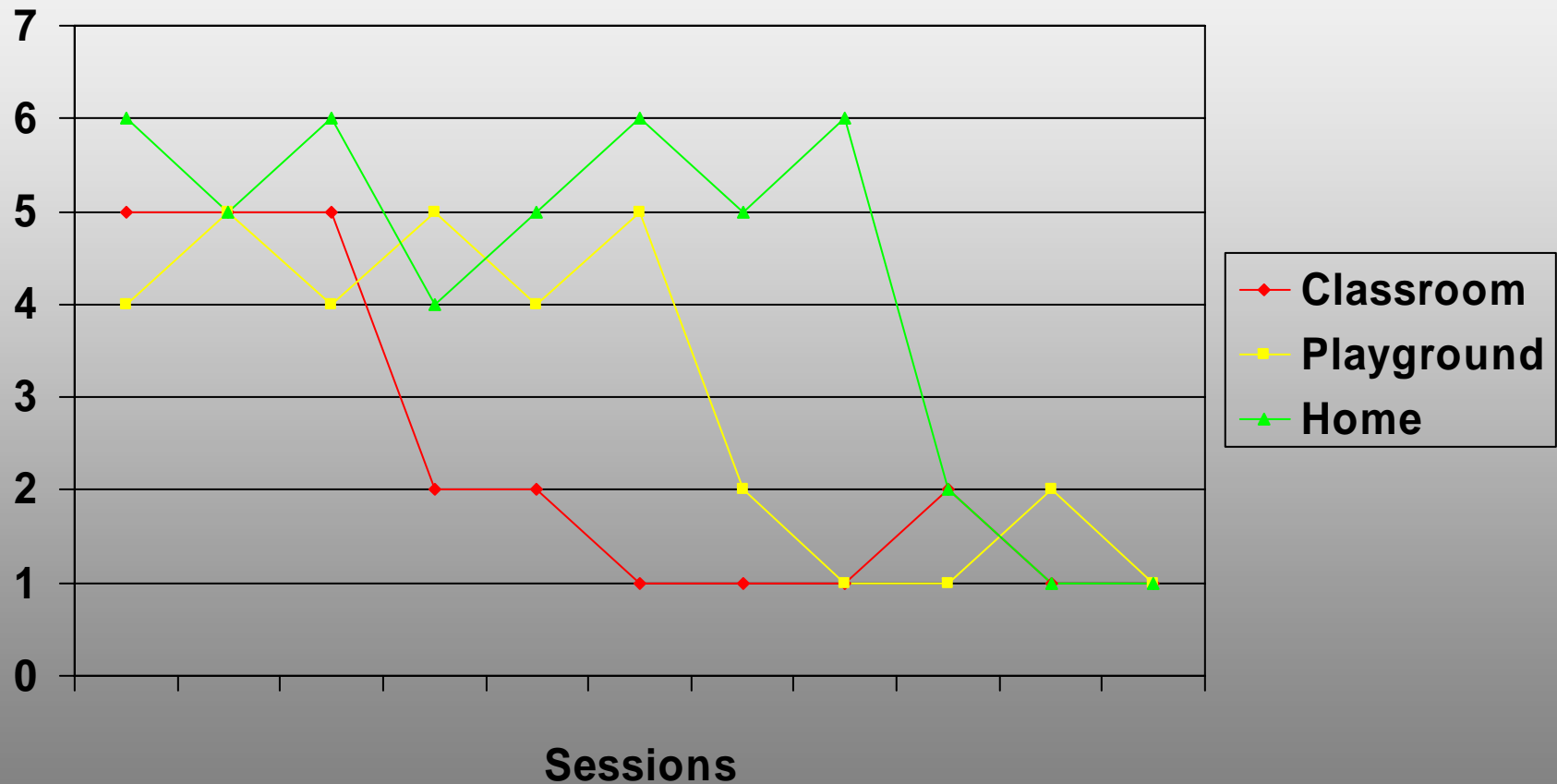
Confounding or Carryover



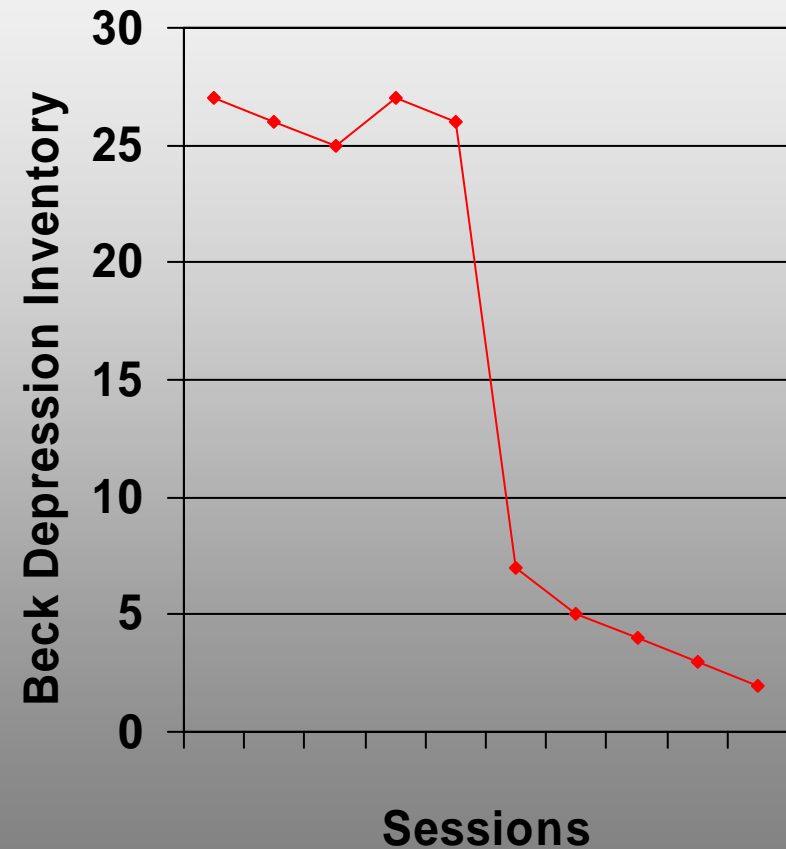
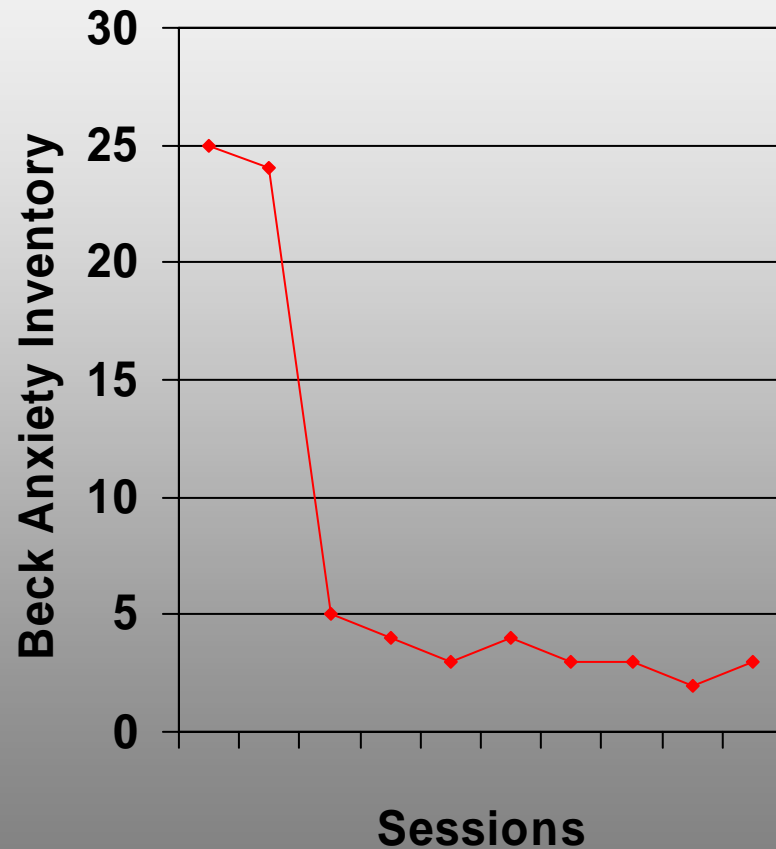
Multiple Baseline Design

- Ethical issues in reversal designs
- Multiple baseline design does not involve withdrawal of intervention
- Effects of an intervention across multiple behaviors, individuals, or situations is evaluated

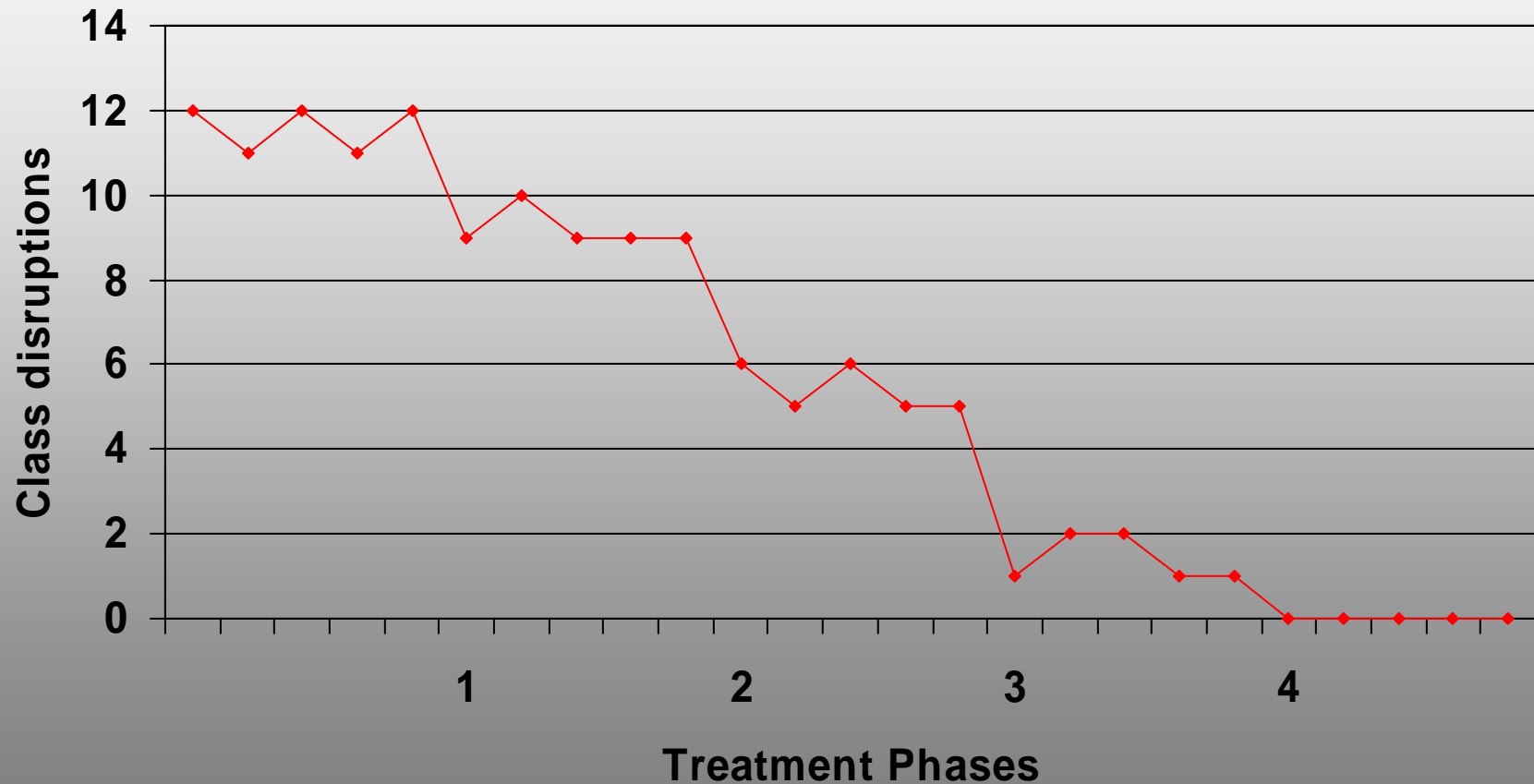
Multiple Baseline Design for Aggressive Behavior



Multiple Baseline Design for Anxiety and Depression



Changing Criterion Design

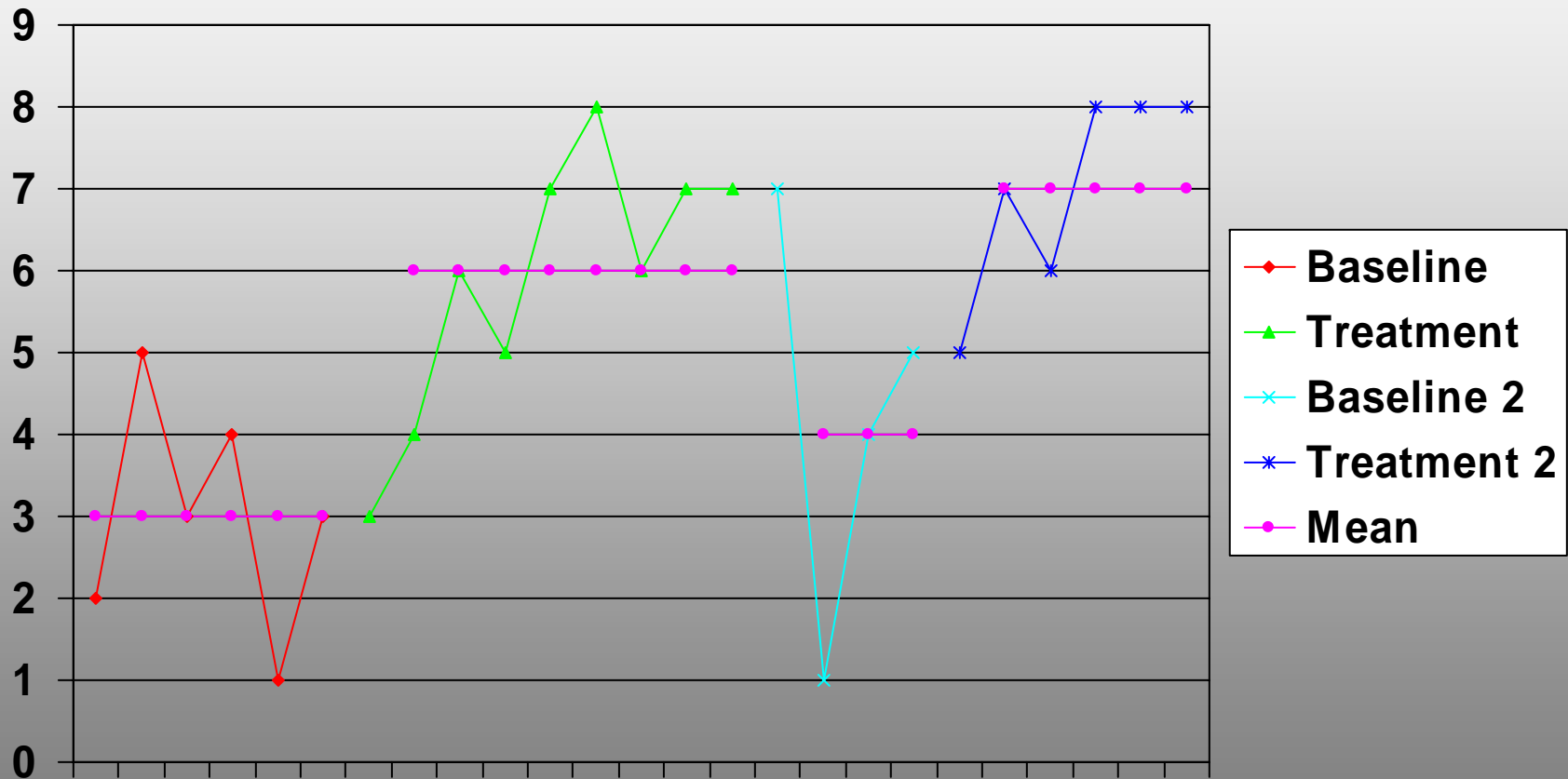


Data Evaluation in Single Case Research

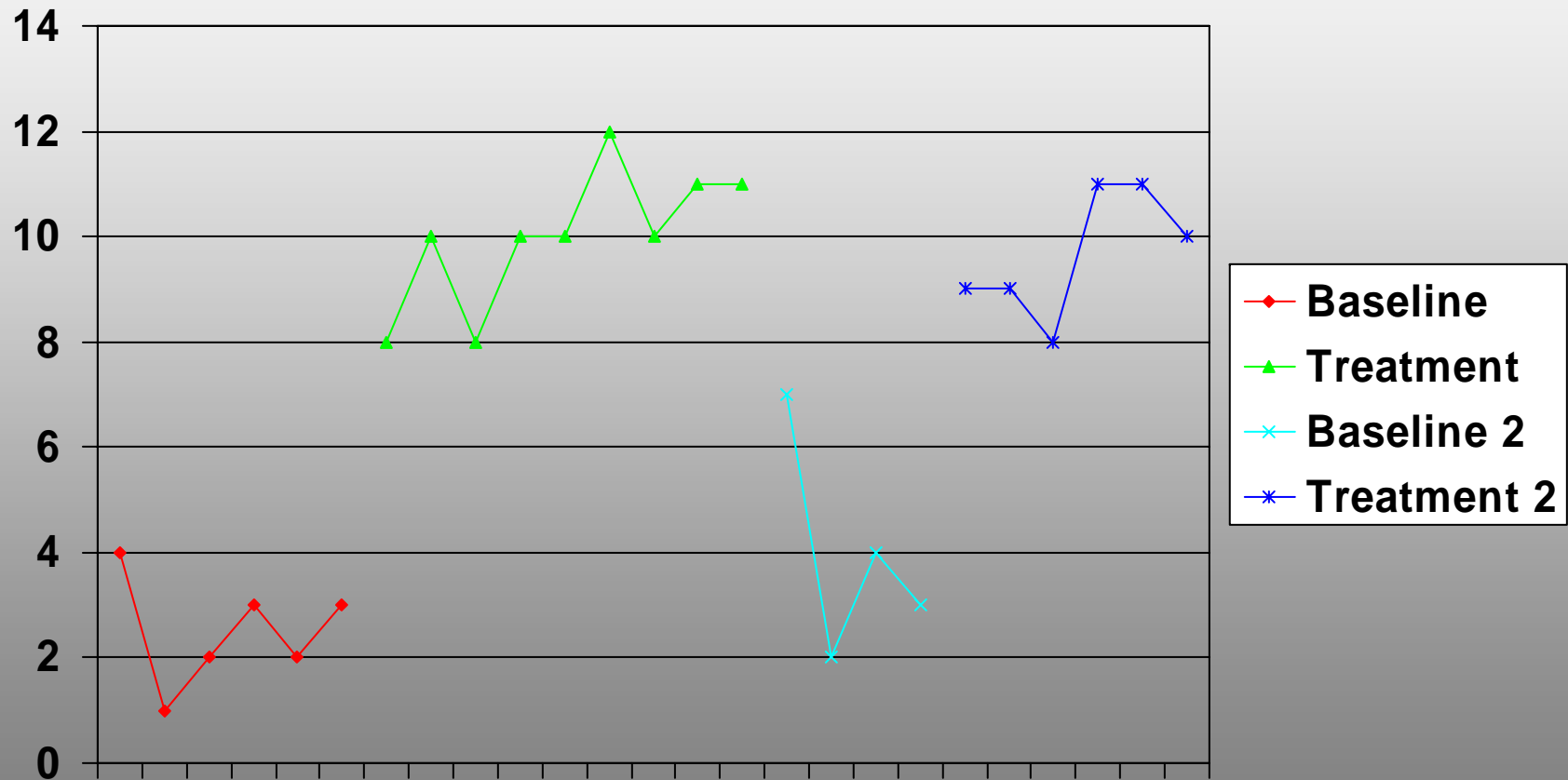
- Visual inspection



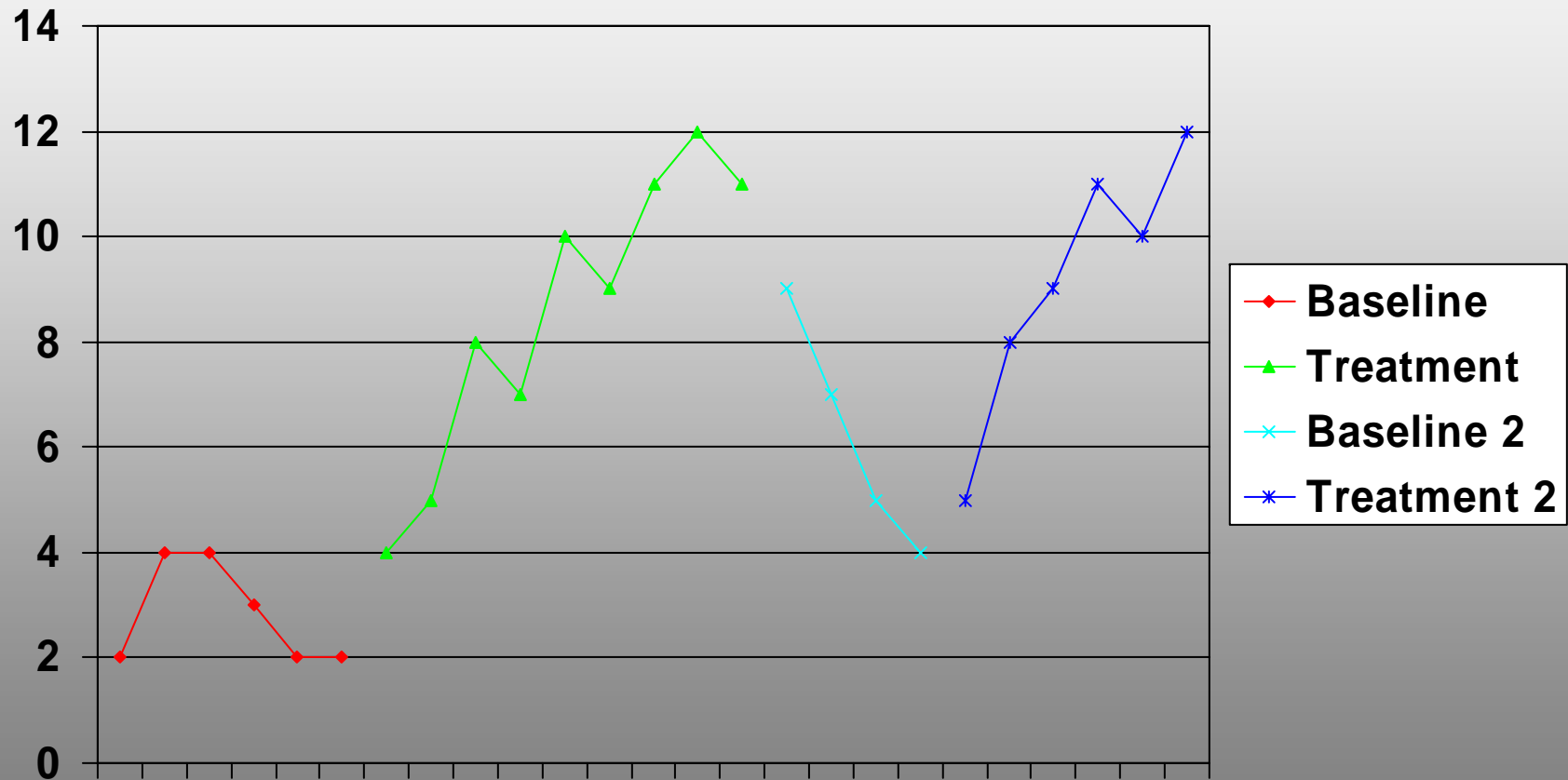
Changes in Mean



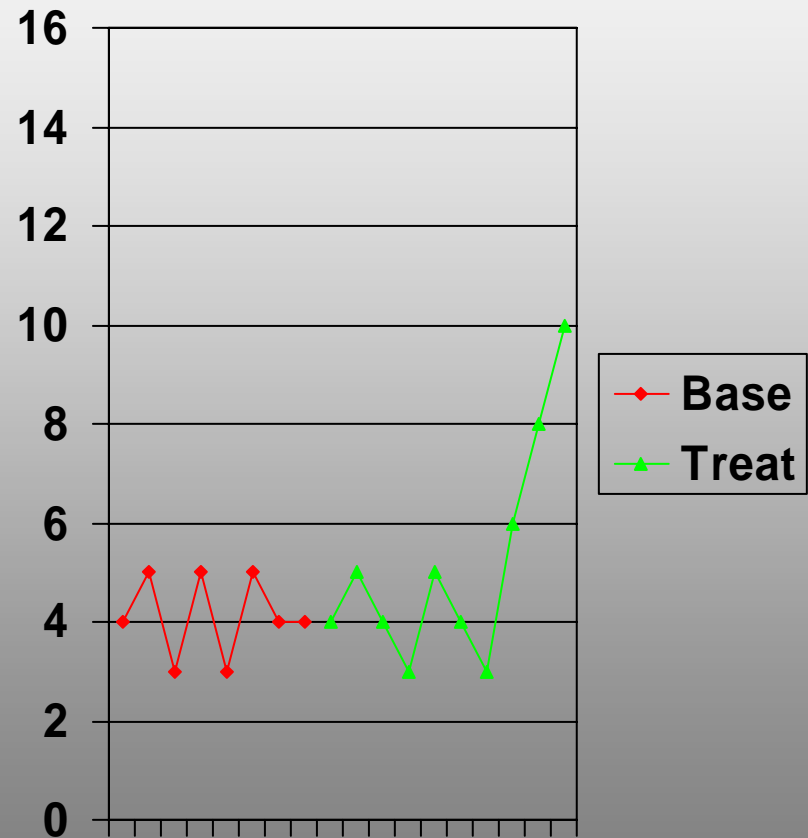
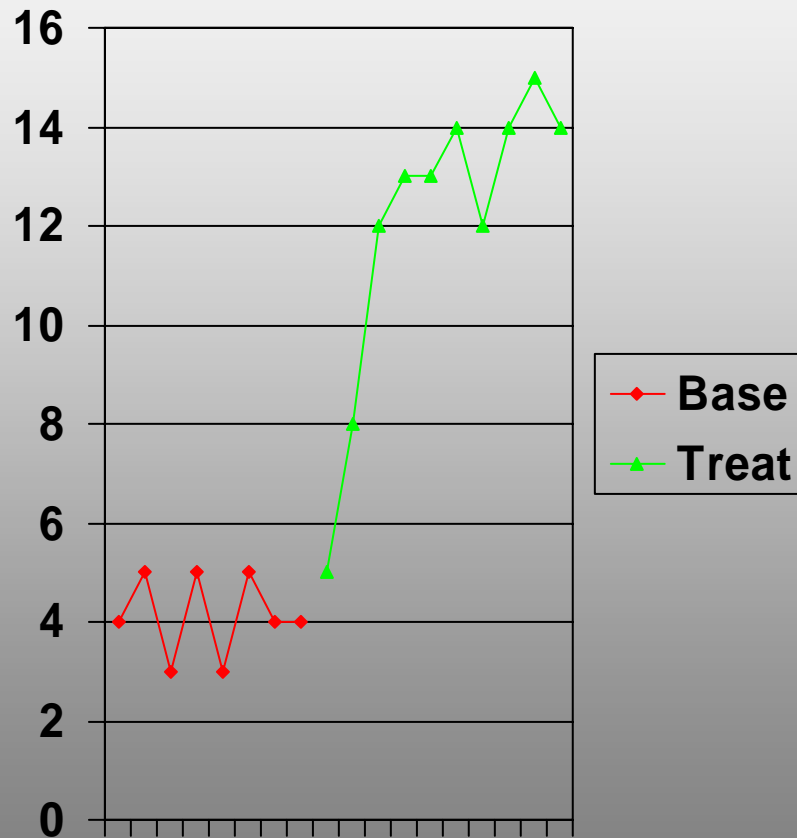
Changes in Level: Shift from one phase to the next



Changes in Slope



Latency of the Change



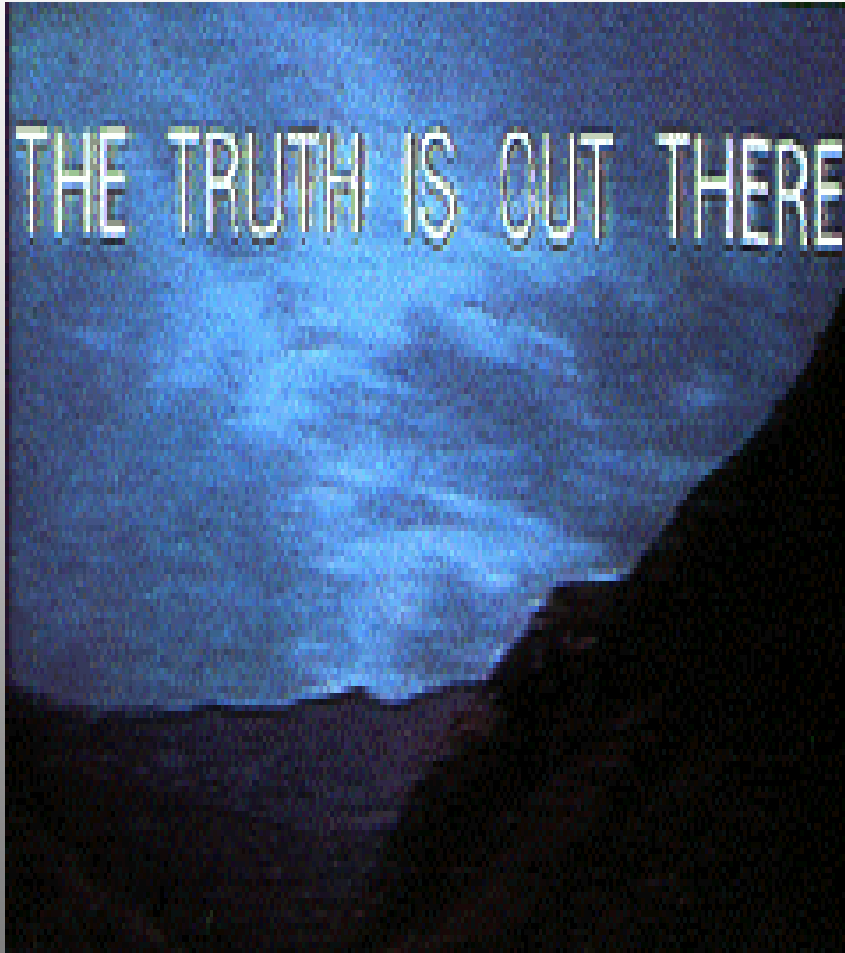
Data Evaluation in Single Case Research

- Limitations – lack of concrete decision rules
- Only very marked effects may be noticed
- Particular patterns of data (e.g., mean, slope) required

General Limitations of Single-Subject Designs

- Potential moderators unknown (e.g., age, gender)
- External validity unknown

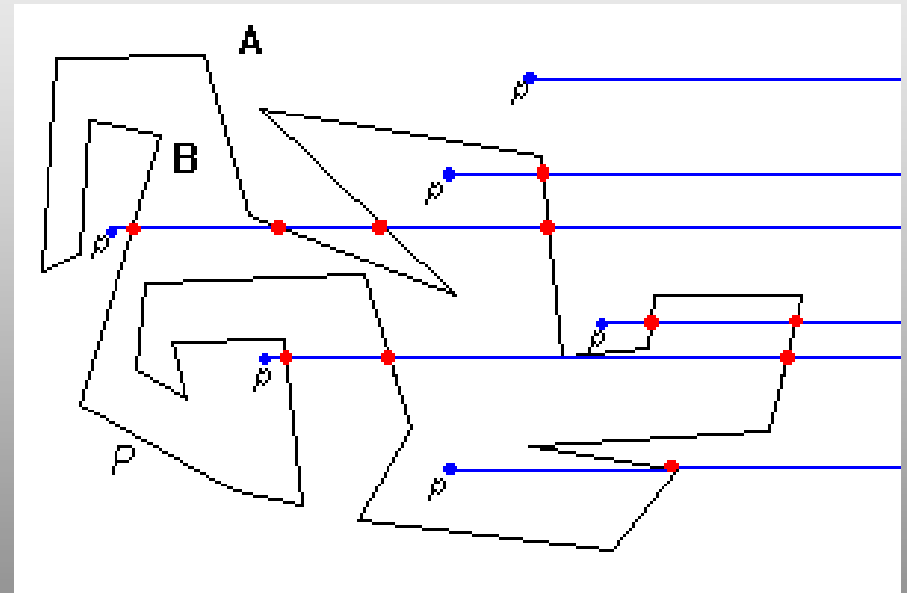
Qualitative Research



- Social constructionism
 - Reality can never be fully apprehended, only approximated (Denzin & Lincoln, 2000)
 - Participants' perspective important
 - Subjective

Theory in qualitative research

- A priori framework not necessary
- Hypotheses not tested
- Grounded theory
 - Theory is developed based on data from the field



Sampling in qualitative research



- Case study
- In depth study of small numbers of people (5 to 25)
- Samples not necessarily representative
 - Selection of individuals who can provide the richest information possible
- Snowball sampling

Qualitative research methods

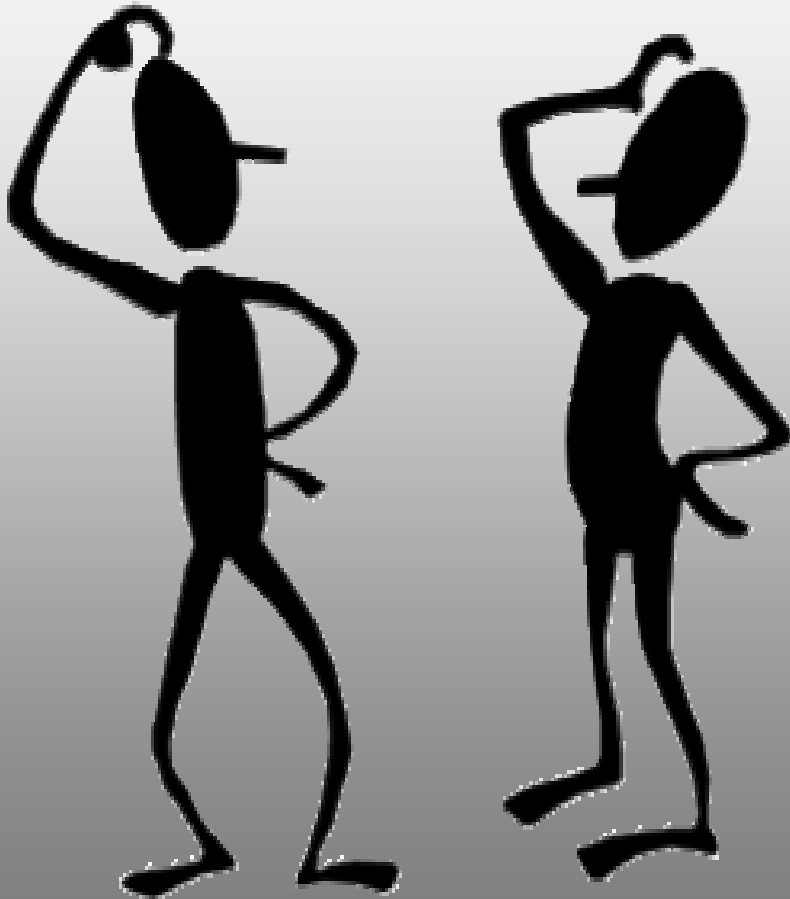
- Minimum of 6 months of fieldwork necessary (Paisley & Reeves, 2001)
- Interviews, observations, documents

Qualitative Interviews

(Paisley & Reeves, 2001)

- **Hypothetical (What would you do in this situation?)**
- **Devil's advocate (Some people think that)**
- **Ideal position (If you had unlimited time and resources)**
- **Interpretive (checking if interpretation is correct)**

Qualitative data



- Rather than numbers, direct quotations are used as data
- Constant comparative analysis
 - Compare incidents within the same data set or across data sets

Limitations of Qualitative Research

- External validity
 - How generalizable are the results?

Assessment Methods and Strategies

Types of Reliability

Type	What it Is	How You Do It	What It Looks Like
Test-Retest	Measure of stability	Give same test twice to same people	$r_{\text{time 1 with time 2}}$
Parallel Forms	A measure of equivalence	Give 2 different forms to the same people	$r_{\text{form 1 with form 2}}$
Inter-Item	Measure of each item consistency	Statistical analysis of each item with scale	
Inter-Rater	Measure of agreement	Have 2 people rate behaviors; evaluate agreement	$\frac{\# \text{ of agreements}}{\# \text{ of total observations}}$

Types of Validity

Face validity

Measure appears to assess a construct

Content validity

Content reflects domain of interest

Criterion validity

Concurrent validity - Correlation with another measure

Predictive validity - Correlation with future performance

Types of Validity

Convergent validity

Measures assess similar constructs

Discriminant validity

Measures assess different constructs

Construct validity

Extent to which the measure reflects the construct

Construct Validity

- Measures should assess relevant aspects of the construct of interest
- Existing measures
 - A measure's name does not necessarily reflect the construct that it measures
 - Popularity of a measure does not ensure its construct validity
 - If the measure is valid, does it measure the particular construct of interest?
- More than one measure of the construct should be included

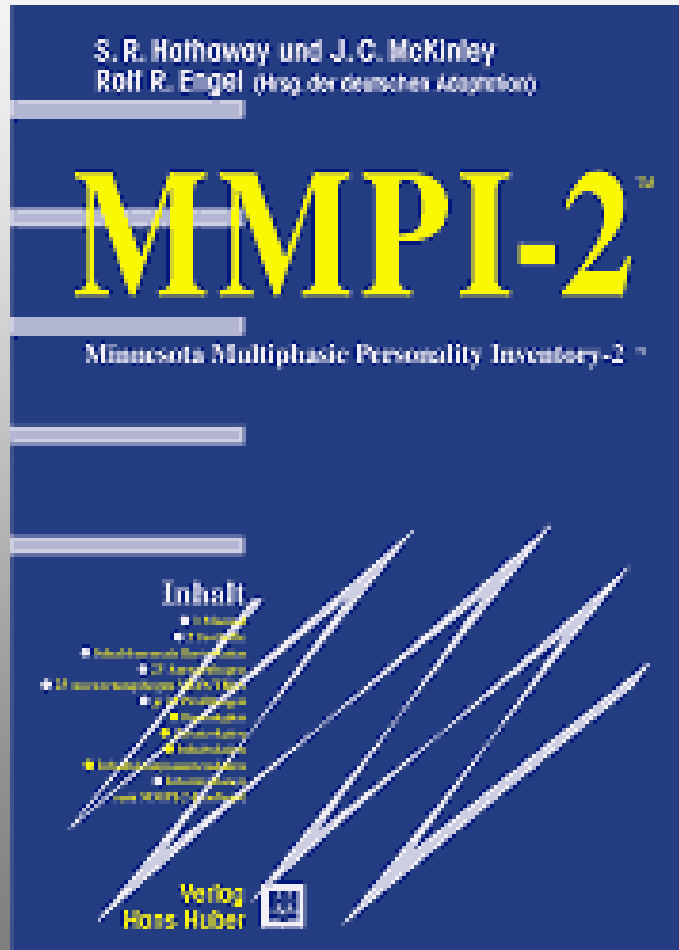
Reliability and Validity in a Particular Research Context

- If you are using an existing measure in a context in which it was not validated, you need to determine its psychometric properties in this context
 - Internal consistency
 - Criterion validity
- If you modify a measure (e.g., add or delete items), it becomes a new measure

Measurement Sensitivity

- Can the measure reflect change as a result of an experimental manipulation or group differences?
 - Can a test be too reliable?
- Large range of possible responses necessary to detect change
 - 5-item test vs. 50-item test
- If participants' responses are skewed, change can occur primarily in one direction

Test Development (Haynes, Nelson, & Blaine, 1999)



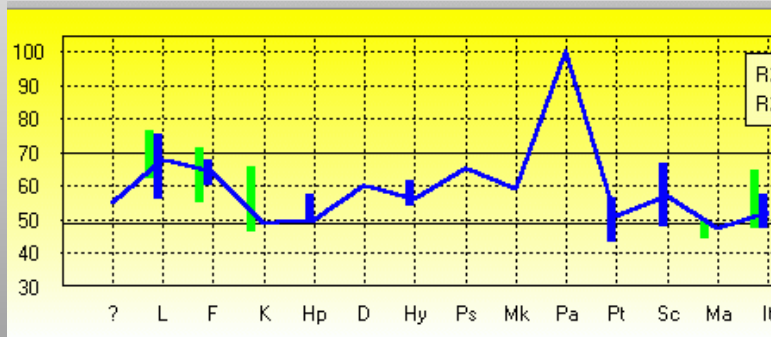
- Specify construct
- Specify contexts for use of test
- Specify the intended functions of the test

Test development



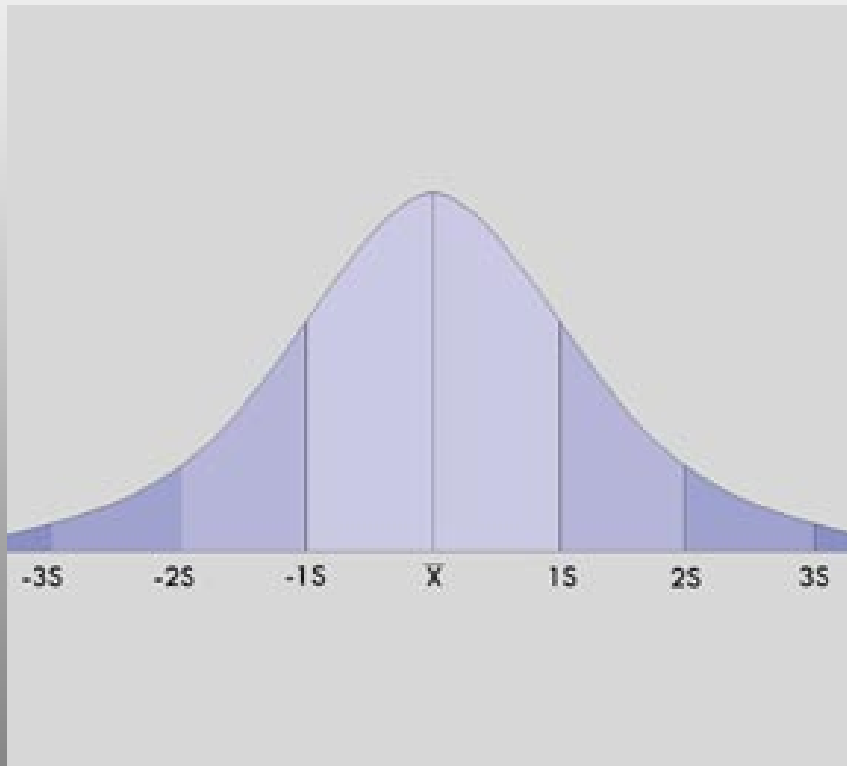
- Generate and select items based on:
 - Rational deduction
 - Clinical experience
 - Theories
 - Empirical literature
 - Existing tests
 - Suggestions by experts
 - Population sampling

Test development



- Match items to facets and dimensions
- Establish quantitative parameters of the test (e.g., response formats, scales)
- Develop instructions
- Expert review
- Population review
- Rereview

Test development



- Pilot test
- Develop representative norms
- Evaluate validity

Methods of Assessment

- Global ratings
- Self-report inventories
- Projective techniques
- Behavioral observations
- Psychobiological measures

Global Ratings: DSM Global Assessment of Functioning Scale

- 91-100: Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought by others because of his or her many positive qualities. No symptoms.

Global Ratings: DSM Global Assessment of Functioning Scale

- 81-90: Absent or minimal symptoms (e.g., mild anxiety before an exam); good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns (e.g., an occasional argument with family members).

Global Ratings: DSM Global Assessment of Functioning Scale

- 71-80: If symptoms are present, they are transient and expectable reactions to psychosocial stressors (e.g., difficulty concentrating after family argument); no more than slight impairment in social, occupational, or school functioning (e.g., temporarily falling behind in schoolwork).

Global Ratings: DSM Global Assessment of Functioning Scale

- 61-70: Some mild symptoms (e.g., depressed mood and mild insomnia) OR some difficulty in social, occupational, or school functioning (e.g., occasional truancy, or theft within the household), but generally functioning pretty well, has some meaningful interpersonal relationships.

Global Ratings: DSM Global Assessment of Functioning Scale

- 51-60: Moderate symptoms (e.g., flat affect and circumstantial speech, occasional panic attacks) OR moderate difficulty in social, occupational, or school functioning (e.g., few friends, conflicts with peers or co-workers).

Global Ratings: DSM Global Assessment of Functioning Scale

- 41-50: Serious symptoms (e.g., suicidal ideation, severe obsessional rituals, frequent shoplifting) OR any serious impairment in social, occupational, or school functioning (e.g., no friends, unable to keep a job).

Global Ratings: DSM Global Assessment of Functioning Scale

- 31-40: Some impairment in reality testing or communication (e.g., speech is at times illogical, obscure, or irrelevant) OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing at school).

Global Ratings: DSM Global Assessment of Functioning Scale

- 21-30: Behavior is considerably influenced by delusions or hallucinations OR serious impairment in communication or judgment (e.g., sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) OR inability to function in almost all areas (e.g., stays in bed all day; no job, home, or friends).

Global Ratings: DSM Global Assessment of Functioning Scale

- 11-20: Some danger of hurting self or others (e.g., suicide attempts without clear expectation of death, frequently violent, manic excitement) OR occasionally fails to maintain minimal personal hygiene (e.g., smears feces) OR gross impairment in communication (e.g., largely incoherent or mute).

Global Ratings: DSM Global Assessment of Functioning Scale

- 1-10: Persistent danger of severely hurting self or others (e.g., recurrent violence) OR persistent inability to maintain personal hygiene OR serious suicidal act with clear expectation of death.

Global Ratings: DSM Global Assessment of Functioning Scale

- Current rating
- Highest during past year

Case 1: Bad Voices

- This woman was referred to the psychiatric emergency department by a psychologist who was treating her in an anxiety disorders clinic. After telling her psychologist that she heard voices telling her to kill herself and then assuring him that she would not act on the voices, she skipped her next appointment. Her psychologist called her to say that if she did not voluntarily come to the emergency department for an evaluation, he would send the police for her.
- Interviewed in the emergency department, she was at times angry and insistent that she did not like to talk about her problems and that the psychologist would not believe her or help her anyway. This attitude alternated with flirtatious and seductive behavior.
- She first saw a psychologist 3 years ago. At that time, she began to hear a voice telling her that she was a bad person and that she should kill herself. She would not say exactly what it told her to do, but she reportedly drank nail polish remover in a suicide attempt. At that time, she remained in the emergency department for 2 days and received an unknown medication that reportedly helped quiet the voices. She did not return for an outpatient appointment after discharge and continued having intermittent periods of auditory hallucinations over the next 3 years with some periods lasting for months at a time. For example, often when she was near a window, a voice would tell her to jump out, and when she walked near traffic, it would tell her to walk in front of a car.

Case 1: Bad Voices

- She reports that she continued to function well after that first episode, finishing high school. About 2 months ago, she began to have trouble sleeping and felt “nervous.” It was at this time that she responded to an ad for the anxiety clinic. She was evaluated and given Haldol, an antipsychotic. She claims that there was no change in the voices at that time, and only the insomnia and anxiety were new. She specifically denied depressed mood or anhedonia or any change in her appetite but did report that she was often tearful and lonely, and sometimes ruminated about “bad things,” such as an attempted rape of her at age 14. Despite these symptoms, she continued working part-time as a salesperson in a department store.
- She says she did not keep her follow-up appointment at the anxiety clinic because the Haldol was making her stiff and nauseous and was not helping her symptoms. She denies wanting to kill herself, and cited how hard she was working to raise her children as evidence that she would not “leave them that way.” She did not understand why her behavior had alarmed the psychologist.
- She denied alcohol or drug use, and a toxicology screen for various drugs was negative. Physical examination and routine laboratory tests were also normal. She had stopped the Haldol on her own 2 days before the interview.

Case 1: Bad Voices

- Following the interview, there was disagreement among the staff about whether to let the client leave. It was finally decided to keep her overnight, until her mother could be seen the following day. When told she was to stay in the emergency department, she replied angrily, yet somewhat coyly: “Go ahead. You’ll have to let me out sooner or later, but I don’t have to talk to you if I don’t want to.”
- When the mother was interviewed the following morning, she said she did not see a recent change in her daughter. She did not feel that she would hurt herself but agreed to stay with her for a few days and make sure she went for follow-up appointments. In the family meeting, she complained that her mother was unresponsive and did not help her enough. However, she again denied depression and said she enjoyed her job and her children. About the voices, she said that over time she had learned how to ignore them and that they did not bother her as much as they had at first. She agreed to outpatient treatment provided the therapist was a woman.

Case 2: Under Surveillance

- This man was brought into the emergency department by the police for striking an elderly woman in his apartment building. His chief complaint is, “That damn bitch. She and the rest of them deserved more than that for what they put me through.
- He has been continuously ill since the age of 17. During his first year of college, he gradually become more and more convinced that his classmates were making fun of him. He noticed that they would snort and sneeze whenever he entered the class room. When a woman he was dating broke off the relationship with him, he believed that she had been “replaced” by a look-alike. He called the police and asked for their help to solve the “kidnapping.” His academic performance in school declined dramatically, and he was asked to leave and seek psychiatric care.
- He got a job as a bank teller, which he held for 7 months. However, he was getting an increasing number of distracting “signals” from co-workers, and he became more and more suspicious and withdrawn. It was at this time that he first reported hearing voices. He was eventually fired, and soon thereafter was hospitalized for the first time. He has not worked since.

Case 2: Under Surveillance

- He has been hospitalized 3 times, the longest stay being 3 months. However, in the past five years, he has been hospitalized only once for 3 weeks. During the hospitalizations he has received various antipsychotic drugs. Although outpatient medication has been prescribed, he usually stops taking it shortly after leaving the hospital. Aside from twice-yearly lunch meeting and his contacts with mental health workers, he is totally isolated socially. He lives on his own and manages his own financial affairs, including a modest inheritance. He reads the *Wall Street Journal* daily. He cooks and cleans for himself.

Case 2: Under Surveillance

- He maintains that his apartment is the center of a large communication system that involves all three major television networks, his neighbors, and apparently hundreds of “actors” in his neighborhood. There are secret cameras in his apartment that carefully monitor all his activities. When he is watching television, many of his minor actions (e.g., going to the bathroom) are soon directly commented on by the announcer. Whenever he goes outside, the “actors” have all been warned to keep him under surveillance. Everyone on the street watches him. His neighbors operate two different “machines”; one is responsible for all of his voices, except the “joker.” He is not certain who controls this voice, which “visits” him only occasionally and is very funny. The other voices, which he hears many times each day, are generated by this machine, which he sometimes thinks is directly rung by the neighbor whom he attacked. For example, when he is going over his investments, these “harassing” voices constantly tell him which stocks to buy. The other machine he calls “the dream machine.” This machine puts erotic dreams into his head.

Case 2: Under Surveillance

- He describes other unusual experiences. For example he recently went to a shoe store 30 miles from his house in the hope of getting some shoes that wouldn't be "altered." However, he soon found out that, like the rest of the shoes he buys, special nails had been put into the bottom of the shoes to annoy him. He was amazed that his decision concerning which shoe store to go to must have been known to his "harassers" before he himself knew it, so that they had time to get the altered shoes made up especially for him. He realizes that great effort and "millions of dollars" are involved in keeping him under surveillance. He sometimes thinks this is all part of a large experiment to discover the secret of his "superior intelligence."
- At the interview, he is well groomed, and his speech is coherent and goal-directed. His affect is, at most, only mildly blunted. He was initially angry at being brought in by the police. After several weeks of treatment with an antipsychotic drug failed to control his psychotic symptoms, he was transferred to a long-stay facility with the plan to arrange a structured living situation for him.

Limitations of Global Ratings

- Reliability of single items
- Construct validity – do the ratings measure what they are supposed to measure?
- Sensitivity