Single-Case Designs (SCD)

I. Use of SCD in SW

II. Requirements for SCD

1. Target problem (DV)
2. Quantification of data
3. Obtaining baseline
4. Graphic display of data

III. Designs(AB, ABAB. ABC/ABCD) and Examples

IV. Time Series Designs and Examples

V. External Validity

I. Use of Single Case Design in SW

- Logic of time-series design
- Also called Single-subject/single-system design, and N=1 studies
- Most relevant research topics for clinical practitioners
- Major limitations: Sample Sizes are small (usually 1) and problems with external validity

II. Requirements for SCD

1. Target problem(s)

- Decide desired outcome (=DV) to be measured
- Positive or negative indicator?
- Should occur frequently enough

❖ *Triangulation*

II. Requirements for SCD

1. Target problem(s)

- Who will measure it? (1) self-monitoring, (2) practitioner, (3) significant others
- Sources of data: (1) self-report scale, (2) direct observation, (3) available records

❖ *Triangulation with multiple measures and observers are strongly preferred*

II. Requirements for SCD

2. Quantification of data

a) Frequency

b) Duration

c) Magnitude

II. Requirements for SCD

3. Obtaining baseline phase

- Repeated measures before the intervention

  (=control phase)

- Attributes of good baseline:
  1) Minimum of 5-10 measurements
  2) Stable
  3) Problem is not nearing resolution before the intervention

Examples of Baseline Measures

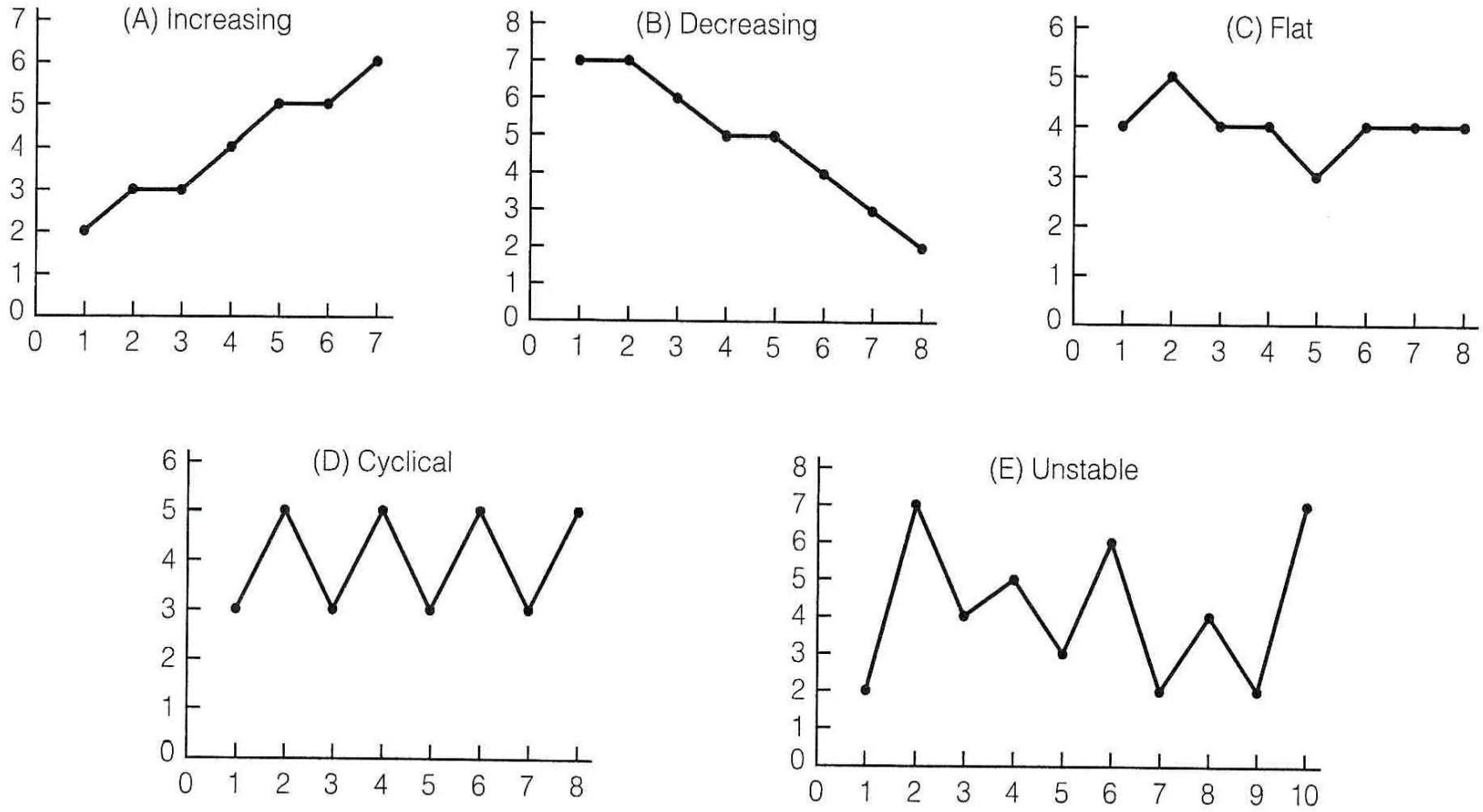


Figure 14-4 Alternative Baseline Trends

Baseline and Intervention Phases

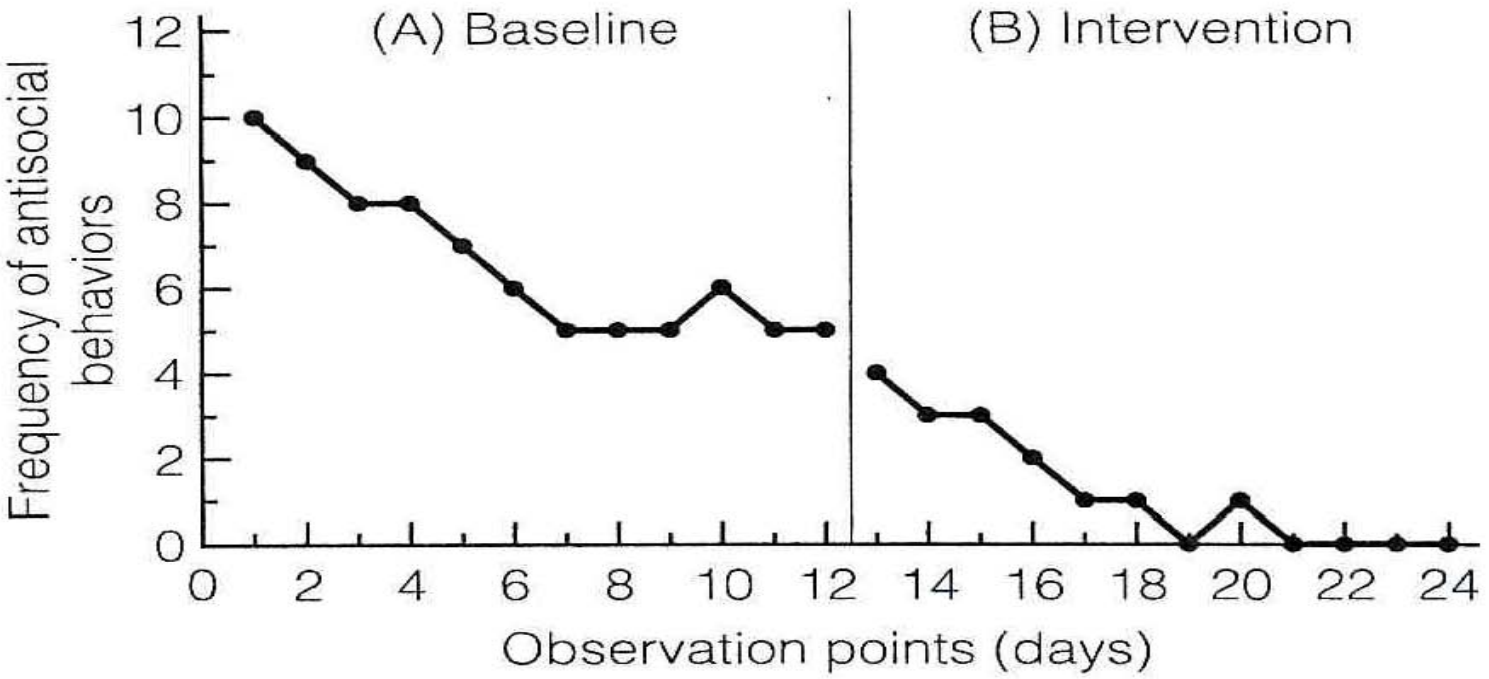


Figure 14-5 Graph of Hypothetical Outcome after Extending a Baseline with an Improving Trend (AB Design)

Baseline and Intervention Phases

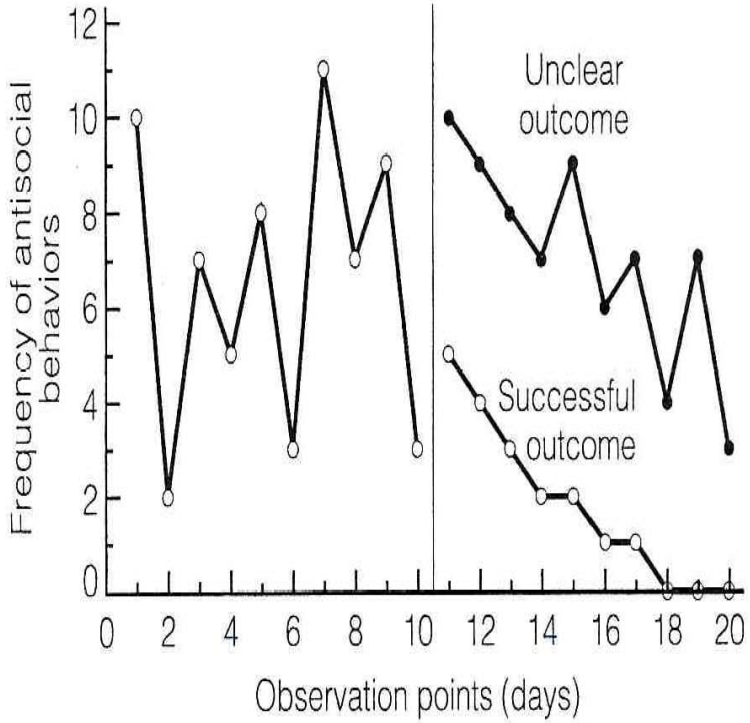


Figure 14-6 Graph of Two Hypothetical Outcomes with an Unstable Baseline (AB Design)

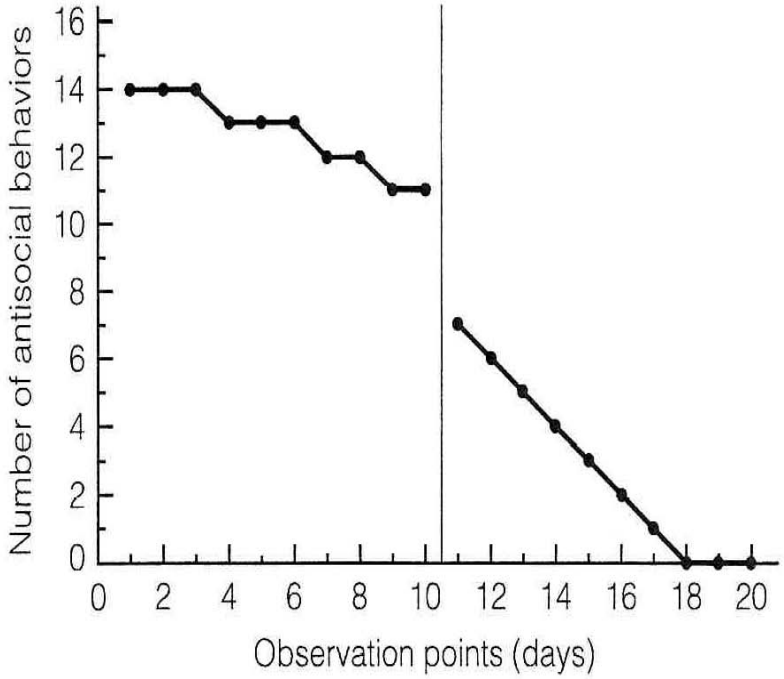


Figure 14-7 Graph of a Hypothetical Outcome Supporting Intervention Efficacy with an Improving Baseline (AB Design)

II. Requirements for SCD

4. Graphic display of data

- X axis:
- Y axis:
- (dashed) Vertical line
- Data points
- Labels: Baseline/A phase, Intervention phase/B phase

III. Designs

1. AB design

- One baseline phase & one intervention phase
- Advantage(s):
- Disadvantage(s):
- Retrospective baseline

III. Designs

2. ABAB design

- Withdrawal/reversal design
- Advantage(s):
- Disadvantage(s):

III. Designs

2. ABAB design

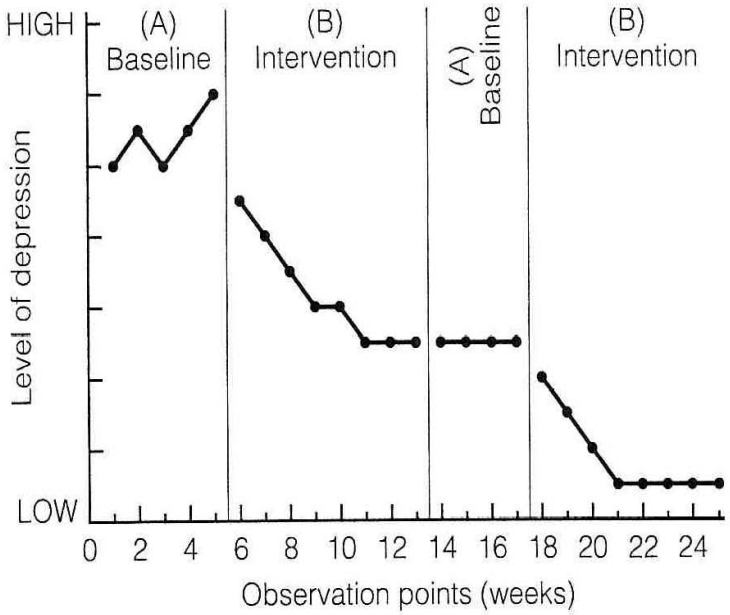


Figure 14-8 Graph of Hypothetical Outcome of ABAB Design Supporting Intervention Efficacy Despite Failure to Obtain a Reversal during Second Baseline

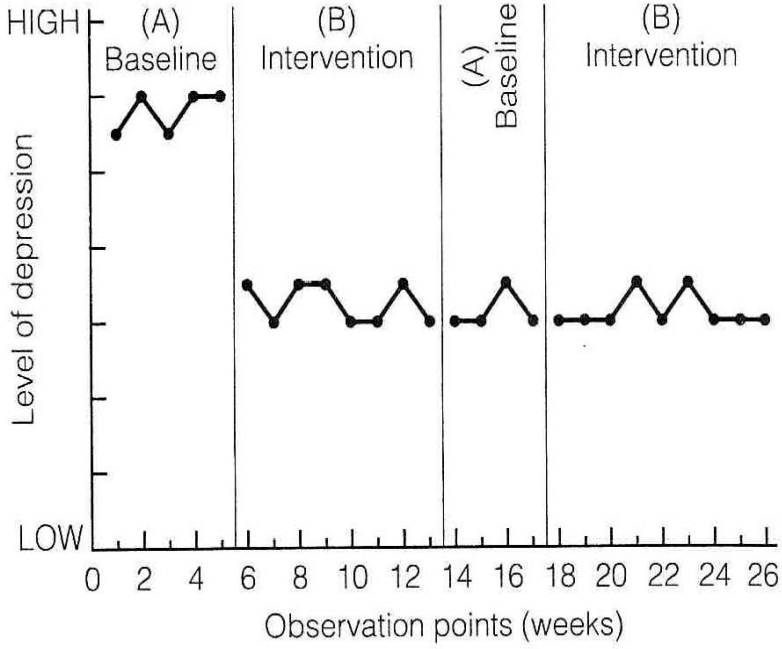


Figure 14-9 Graph of Hypothetical Outcome of ABAB Design with Unclear Results

III. Designs

3. Multiple-component designs (ABC, ABCD)

- Add a third type of intervention

- Caution: carryover effect, order effect, irreversibility effect, history

III. Designs

3. Multiple-component designs (ABC, ABCD)

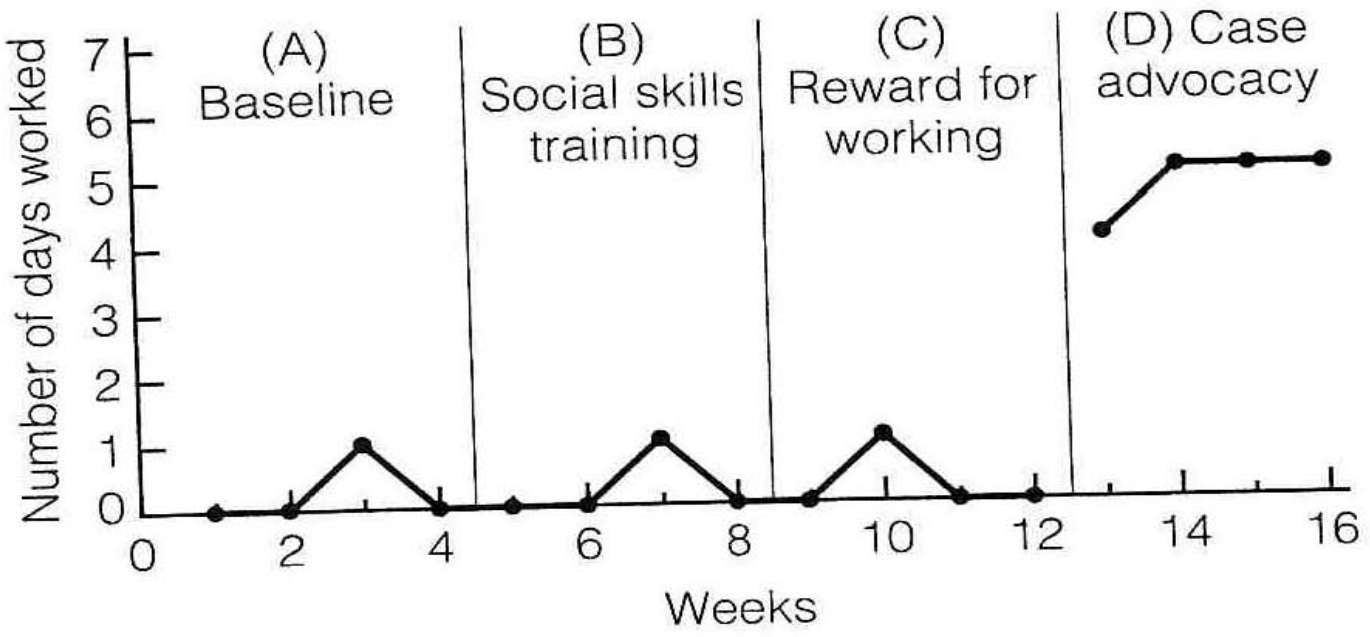


Figure 14-14 Graph of Hypothetical Outcome of Multiple-Component (ABCD) Design, with Unclear Results

III. Designs

- *Replication* can enhance both internal and external validity.

Be prepared for practical obstacles

IV. Time Series and Related Designs

Notations:

X = introduction of stimulus, intervention, or treatment

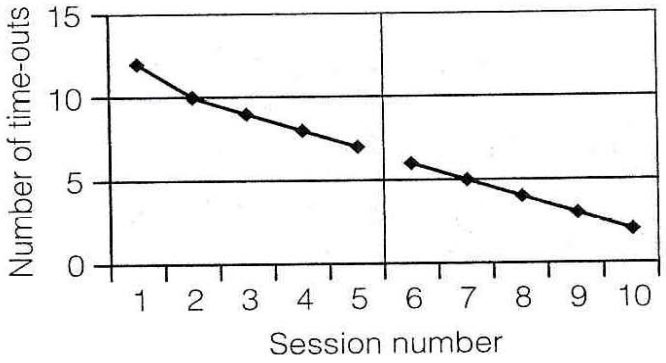
O = observation/measurement

1. Time-series design

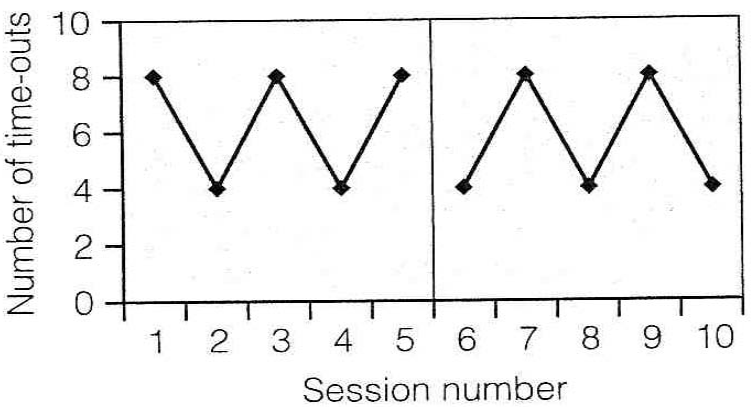
O O O O O X O O O O O

Examples of Time Series Projects

Pattern 1



Pattern 2



Pattern 3

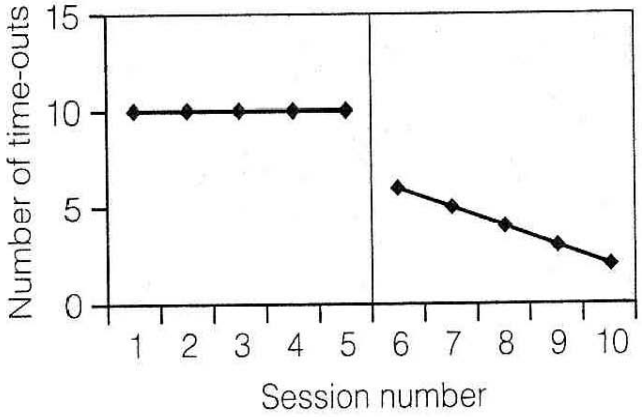


Figure 12-3 Three Patterns of Number of Time-Outs in a Longer Time-Series Perspective

V. External Validity

- Generalizability
- Representativeness of sample, setting and procedures
- Sampling and survey research