

## Lecture 7/Chapter 6

- Applying 7 Guidelines to Jet Lag Study
- Applying 7 Guidelines to Breastmilk Study

## Seven Guidelines for Systematic Evaluation

- Step 1: Determine if study was sample survey, experiment, obs study, census, or anecdotes.
- Step 2: Consider 7 Critical Components (details).
- Step 3: Check for “Difficulties and Disasters” (sampling p. 69, exp. p. 90, obs. studies p. 96)
- Step 4: Is info complete? If not, find original?
- Step 5: Do results make sense?
- Step 6: Are alternative explanations possible?
- Step 7: Do results affect your attitude/lifestyle?

Prepare for step-by-step discussion of how 7 Guidelines apply to jet lag & breastfeeding studies; note 7 **Critical Components** for step 2:

1. Source of research and funding
2. Researchers who had contact w. participants
3. Individuals studied, how they were selected
4. Variables studied [measurements, questions]
5. Setting (time, place)
6. Confounding variables [extraneous differences] if groups are compared
7. Magnitude of claimed effects or differences

## Example: Jet Lag & 7 Guidelines

- **Background:** *Jet lag? Just light up your knee.*
- **Question:** How does each guideline apply?
- **Response:** **Step 1 (study design):**  
**Step 2 (7 Components):**  
#1 source/funding:  
#2 researchers having contact w. participants:  
#3 individuals/how selected:

## Example: Jet Lag & 7 Guidelines

- **Response: Step 2** (7 Components) continued:  
#4 variables: explan:  
response:  
#5 setting:  
#6 extraneous differences/confounding variables:  
#7 magnitude/quantify effect:

## Example: Jet Lag & 7 Guidelines

- **Response: Step 3** Difficulties? (Exp. p. 90)
  1. Confounding variables?
  2. Interacting variables?
  3. Placebo, Hawthorne, experimenter effects?
    - Did subjects know if they were getting light?
    - Would Hawthorne effect lead to different responses for treatment & control?
    - Are responses (temp, melatonin) subjective (subject to influence or interpretation by researchers)?
  4. Lack of realism?

## Example: Jet Lag & 7 Guidelines

- **Response:**
  - Step 4** Information complete?
  - Step 5** Do results make sense?
  - Step 6** Alternative explanation?
  - Step 7** Results' impact on you?

## Example: Breast Milk Benefit & Guidelines

- **Background:** *Breast Milk Benefit*
- **Question:** How does each guideline apply?
- **Response: Step 1** (study design):
  - Step 2** (7 Components)
    - #1 source/funding:
      - #2 researchers having contact w. participants:
      - #3 individuals/how selected:

## Example: Breast Milk & Guidelines

### □ Response: Step 2 (7 Components) continued

#4 variables: explanatory--

response--

#5 setting:

#6 confounding variables:

#7 magnitude/quantify effect:

## Example: Breast Milk & Guidelines

### □ Response: Step 3 Difficulties? (Obs. p. 96)

1. Confounding variables?
2. Sample non-representative?
3. Time as confounder?

### Step 4 Information complete?

### Step 5 Do results make sense?

### Step 6 Alternative explanation?

### Step 7 Results' impact on you?

## Example: Breast Milk & Guidelines

- Note: a subsequent study linked breastfeeding and intelligence. *Bottle fed and smart* is the reaction of an indignant mother's letter to the editor.
- Extra credit (Max. 5 pts.) From the Internet or a newspaper or magazine, find an article about a statistical study. Write several paragraphs detailing the 7 Guidelines, including a paragraph on Step 2: the 7 Critical Components.

### BOTTLE-FED AND SMART

I was quite irritated by "FDA considers adding nutrient to infant formula" (Feb. 24). The article states that a nutrient found in mother's milk (the fatty acid DHA) is not found in infant formula. The main issue was whether U.S. companies will put this fat into the formula. I do not have a problem with that. I do have a problem with the study that stated that breast-fed babies are smarter than bottle-fed.

Now, I cannot speak for every mother of a bottle-fed baby, but I can speak for myself. My 10-month-old son has always been bottle-fed and he is very smart. I have been told by his pediatrician that in some aspects he is ahead for his age. I feel that this study contains some inaccuracies. Obviously, the people who conducted this study have never met my son.