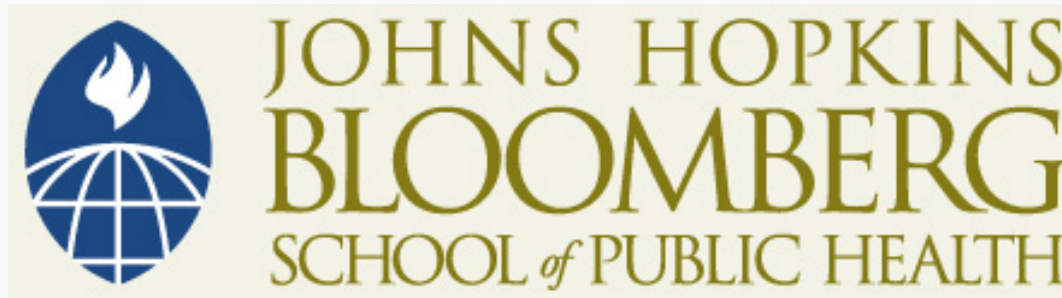


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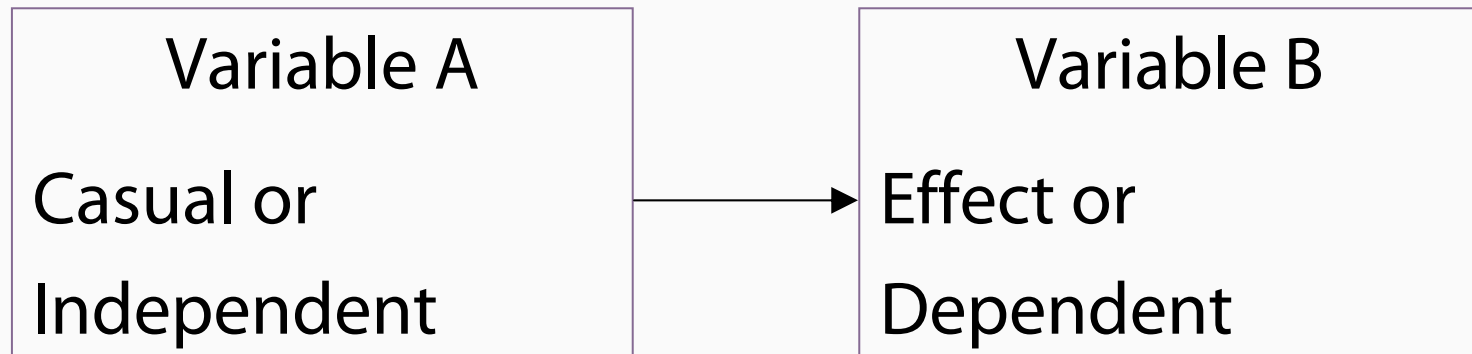
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Research Design for HSRE: Part 1

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Relationship Between Variables in HSRE

- Descriptive studies identify relationships
- Explanatory or analytical studies elaborate the conditions under which A and B are related



The Two Basic Methodologic Approaches to HSRE

1. Observational
 - Involves observation of naturally occurring events
 - Non-interventional
 - Can be descriptive or hypothesis testing
 - Can be retrospective or prospective

The Two Basic Methodologic Approaches to HSRE

2. Experimental or quasi-experimental
 - Involves an intervention, the effects of which are the main focus of the project
 - Prospective
 - Always hypothesis testing, not descriptive
 - Most evaluations are of this type, where program is “intervention” of interest

Two Major Goals of Intervention-Oriented HSRE

1. Are the outcomes witnessed actually due to the intervention? (issues of internal validity)
2. To what extent can the outcome in this situation be generalized to other situations? (issues of external validity)

Selected Research/Evaluation Designs: Pre-Experimental Designs

1. One shot case study: X O
2. One-group-pre-post: O X O
3. Two-group post: X O
O

- x = intervention
- o = observation

Selected Research/Evaluation Designs: Pre-Experimental Designs

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O

- x = intervention
- o = observation

Selected Research/Evaluation Designs: Experimental Designs

4. Pre-post control group

— R 0 X 0

— R 0 0

— R = Randomization

Selected Research/Evaluation Designs: Experimental Designs

5. Solomon four group

| | | | | |
|---|---|---|---|---|
| — | R | 0 | X | 0 |
| — | R | 0 | | 0 |
| — | R | | X | 0 |
| — | R | | | 0 |

Selected Research/Evaluation Designs: Quasi-Experimental Designs

7. Time series

— 0 0 0 X 0 0 0

10. Non-equivalent control

— 0 X 0

— 0 0

Selected Research/Evaluation Designs: Quasi-Experimental Designs

14. Multiple time series

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| — | 0 | 0 | 0 | X | 0 | 0 | 0 |
| — | 0 | 0 | 0 | | 0 | 0 | 0 |

15. Institutional cycle (“patched up”)

| | | | | |
|---|---|---|---|---|
| — | X | 0 | | |
| — | | 0 | X | 0 |

Some Pros and Cons of Randomization

Pros

- Powerful tool increasing the likelihood that the only difference between the intervention group and the non-intervention group is in fact the intervention itself
- Especially important when effects are likely to be small

Some Pros and Cons of Randomization

Cons

- Ethical concern of withholding “treatment”
- In real-world settings, patients/consumers or providers may not be willing participants
- Can be expensive to carry out



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Section B

Campbell and Stanley: Internal and External Threats to Validity

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

1. History

- An event occurs unrelated to the intervention during the study period (e.g., another competing program occurs)

2. Maturation

- Systematic changes occur naturally among the study population due to the passage of time (e.g., participants get older)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

3. Testing

- An effect among study participants due to the application of a test, interview, or some other measurement technique (e.g., subjects become “test savvy”)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

3. Testing

- An effect among study participants due to the application of a test, interview, or some other measurement technique (e.g., subjects become “test savvy”)

4. Instrumentation

- The test, interview, or measurement technique used changes between consecutive applications (e.g., changes in interviewer)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

5. Statistical regression

- If study population is selected because of qualities that are above or below the population as a whole, then these “outliers” are likely to “regress” back towards the mean of their own accord (e.g., patients with high cholesterol values will be more likely to become average, than vice versa)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

6. Selection bias

- When a comparison group is selected on a non-random basis, this group may differ from the intervention group in such a way to affect the study outcome (e.g., a comparison group is intrinsically healthier than the study group)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

7. Attrition or experimental mortality

- People in one group or another (i.e., intervention or comparison) are more likely to drop out of a study or program during its course (e.g., healthier people drop out of intervention program only because they feel it doesn't apply to them)

The Threats to the Internal Validity of Intervention-Oriented Study/Evaluation

8. Selection interactions

- Selection-maturation
- Selection-history

- Although at the start, comparison group doesn't differ from intervention group, some characteristics of members of one group or the other interact to make it more receptive to maturation or history effects (e.g., comparison group is more likely than other groups to participate in competing program)

The Threats to External Validity of an Intervention-Oriented Study or Evaluation

1. Testing-treatment interaction
 - When a measure is given repeatedly, this has an impact on whether or not an intervention works (e.g., patients actually learned from questionnaire or interviewer and not from the program)

The Threats to External Validity of an Intervention-Oriented Study or Evaluation

2. Selection-treatment interaction

- The outcomes are relevant only to populations from which study groups were selected (e.g., works only in Baltimore, not nationally)

The Threats to External Validity of an Intervention-Oriented Study or Evaluation

3. Reactive effects or situational effects
 - Multiple factors may be associated with the study itself that affect outcome (e.g., if subjects are aware that they are in an experiment, they may try harder, known as the “Hawthorne” effect)

The Threats to External Validity of an Intervention-Oriented Study or Evaluation

4. Multiple treatment effects

- Where outcome is due to intervention and other “hidden treatments” being received by experimental and/or comparison group(s) in this particular setting (e.g., the reason the program works in Baltimore is due to other supportive programs in the area)