Invited lecture for the NIH/NIDCR Survey Research Methods Series

Purposes of surveys and questionnaires: Assessing prevalence, risk, and outcomes

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Topics

1. General principles
   - Characteristics of a Good Questionnaire and Survey
   - Types
     - Self-administered - scales vs individual items
     - Interviews – structured; semi-structured

2. Core purposes
   - Epidemiological surveys
   - Measuring risk and protective factors
   - Outcomes measures

3. Sources of existing tools
Topics

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Characteristics of a Good Measure: Design Properties

1. Clearly defined purpose
   - What?
   - Who?
   - How?

2. Specific content
   - Specific to domain of interest

3. Standard administration procedure
   - Respondents receive same instructions and materials

4. Standard scoring procedure
Characteristics of a Good Measure: Psychometric Properties

Psychometrics = measurement properties of a measure

1. Reliability
   - consistency and stability

2. Validity
   - Does the test measure what it was designed to measure?
   - Content validity
   - Construct validity
Characteristics of a Good Measure: Psychometric Properties

- Consistency and stability

  “I would rather read a book than go to a party with friends.”
  - Agree
  - Disagree

  “I go out with friends on weekend nights.”
  - Never
  - Sometimes
  - Often
Characteristics of a Good Measure: Psychometric Properties

1. Reliability
   - consistency and stability

2. Validity
   - Does the test measure what it was designed to measure?
     - Content validity
     - Construct validity
Characteristics of a Good Measure: Psychometric Properties

- Valid scales of a measure of health habits
  - Exercise
  - Diet
  - Balance of work and recreation
  - Sleeping habits

∅ Political preferences
Topics

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Self-administered Format

1. Administration
   - Individual administration
   - Paper-pencil and computer versions

2. Scale-based measures

3. Individual item-based measures
Scales

**Typical features**

- Multiple items measuring the same domain or construct
- In most instances, about 6-10 items needed for a given scale
- Each item needs to have the same forced-choice format (e.g., true or false; agree or disagree)
- Total score (usually based on sum of the items) is the data point of interest
<table>
<thead>
<tr>
<th>Scales</th>
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<tbody>
<tr>
<td><strong>1.</strong> My use of alcohol or drugs has caused many problems in my life.</td>
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<tr>
<td><strong>2.</strong> I can quit using alcohol or drugs on my own.</td>
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<tr>
<td><strong>3.</strong> I am glad to be in treatment.</td>
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<tr>
<td><strong>4.</strong> My problems are caused by alcohol or drugs.</td>
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Individual Items

- Typical features
  - Single item (or a few) measures the domain or construct of interest
  - Typical to have varying forced-choice options
1. How satisfied are you with your life as a whole these days?
   1. Completely dissatisfied
   2. Quite dissatisfied
   3. Somewhat dissatisfied
   4. Neither, or mixed feelings
   5. Somewhat satisfied
   6. Quite satisfied
   7. Completely satisfied

10. Have you ever had to repeat a grade in school?
    1. No
    2. Yes, one time
    3. Yes, two or more times

11. Did you ever attend summer school to make up for poor grades or to keep from being held back?
    1. No
    2. Yes, one summer
    3. Yes, two summers
    4. Yes, three or more summers

12. Have you ever been suspended or expelled from school?
    1. No
    2. Yes, one time
    3. Yes, two or more times
Interview Format

- Often used to obtain detailed information on life history and diagnostic information
- Computer-aided administration and scoring is becoming the norm
- Structured vs semi-structured
Interview Format

Structured format:

1. “During the past month, did you feel very sad, blue or down in the dumps to the point where you were not your normal self?”
   - Yes
   - No

(based on the respondents answer)
Interview Format

Semi-Structured format:

1. “During the past month, what kind of mood were you in? Did you feel very sad, blue or down in the dumps? Was this feeling not your normal self?”
   (probing questions: “Have others commented on your mood? Did you feel this way for every or nearly every day during the past month?”)
   - True
   - Possibly true
   - False
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Epidemiological Surveys

- Surveys of large populations
- Typically self-administered measures
- Often combine both single items and scale-based items.

Elements of user-friendly survey

- **Structure**
  - If too long, compliance diminishes; more than 60 minutes can be a problem
  - Content flow is logical
  - Branching to reduce response burden

- **Item and response option wording**
  - keep each relatively simple
  - Should be at a 6th grade reading level
  - No double negatives
5. Where did you grow up mostly?
   1. On a farm
   2. In the country, not on a farm
   3. In a small city or town (under 50,000 people)
   4. In a medium-sized city (50,000 – 100,000)
   5. In a suburb of a medium-sized city
   6. In a large city (100,000 – 500,000)
   7. In a suburb of a large city
   8. In a very large city (over 500,000)
   9. In a suburb of a very large city
   10. Can’t say; mixed

6. What is your present marital status?
   1. Married
   2. Engaged
   3. Separated/divorced
   4. Single

10. Did your mother have a paid job (half-time or more) during the time you were growing up?
    1. No
    2. Yes, some of the time when I was growing up
    3. Yes, most of the time
    4. Yes, all or nearly all of the time

11. How would you describe your political preference? (Mark only one circle.)
    1. Strongly Republican
    2. Mildly Republican
    3. Mildly Democrat
    4. Strongly Democrat
    5. Independent
    6. No preference
    7. Other
    8. Don’t know, haven’t decided
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Measuring Risk and Protective Factors

- Both item-based and scale-based are commonly used in the field.
- Risk and protective factors = underlying contributor to a given clinical outcome.
- A given risk or protective factor can represent the same dimension, and often can be accurately measured as either a risk or a protective factor.
  - conventional values (asset) or non-conventional values (risk)
Measuring Risk and Protective Factors

- Some variables are better measured as an asset rather than as a risk, and vice versa.
  - measurement issue (variability; willingness to report)
  - some research on which direction is preferred

- Example: Self-Esteem in Adolescence
  - Measuring as an asset is technically worse than measuring this factor as risk. A measure of low-self-esteem is more significantly related to health behaviors than a measure of high-self-esteem.
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Simple Logic Model

Figure 1. Logic Models and the 4-Step Program Assessment Model
Figure 1. Logic Models and the 4-Step Program Assessment Model
Logic Model
Step 1: Goals

- What are the primary goals of the project?
- What are the target groups you aim to reach?
- What do you hope to accomplish?
Simple Logic Model

Figure 1. Logic Models and the 4-Step Program Assessment Model
Logic Model

Step 2: Process Assessment

- Monitors activities that should lead to outcomes
  - How many staff did what?
  - Nature and extent of planning meetings?
- Provides accountability of your efforts to funder, administration, etc.
- Collects information relevant to why the program worked or did not work
Simple Logic Model

Basic Logic Model

Conditions \rightarrow Activities \rightarrow Outcomes \rightarrow Impacts

Needs Assessment \rightarrow Program Planning \rightarrow Implementation

Step 1 Goals \rightarrow Step 2 Process Assessment \rightarrow Step 3 Outcome Assessment \rightarrow Step 4 Impact Assessment

4-Step Program Assessment

Figure 1. Logic Models and the 4-Step Program Assessment Model
Logic Model
Step 3: Short-term Outcomes

- Measuring immediate or proximal effects
  - What are the direct effects of the program?

- Traditionally measured during or at completion of the program

- Examples
  - Changes in the number of referrals
  - Improvement in scores on risk/protective factors
Simple Logic Model

Figure 1. Logic Models and the 4-Step Program Assessment Model
Logic Model
Step 4: Long-term (Impact) Outcomes

- Ultimate effects desired by the program
  - Examples from adolescent drug treatment:
    - Reduction in drug use
    - Fewer DUI arrests
    - Reduction in school disciplinary actions
  - Traditionally measured after completion of the program (e.g., at 6-months follow-up)
    - Archival records may also provide useful data
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Sources of Existing Tools

**PhenX Toolkit**  [http://www.phenxtoolkit.org](http://www.phenxtoolkit.org)

- The web-based *PhenX Toolkit* is a free service available to the public and is intended for use by investigators who are designing or expanding health-related studies.

- The Toolkit consists of a catalog of high-priority and scientifically rigorous measures for use in research efforts.
Sources of Existing Tools

The following information is provided:

- A brief description of the measure
- Protocol(s) for collecting the measure, with supporting images and tables
- Rationale for selecting the protocol for inclusion in the Toolkit
- Details about the personnel, training, and equipment needed to collect the measure
- Other information, such as any special procedures for collecting the measure
- Selected references
## Sources of Existing Tools

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<th>Category</th>
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Sources of Existing Tools

http://www.mentorfoundation.org/about_prevention

- Several resources, including measures, for building an evaluation plan or strengthening your current program evaluation are provided.

- Each resource is summarized and then followed by either its web-based source or the link to a supporting document.

- Examples: Center for Substance Abuse Prevention (CSAP) Prevention Tool; Kellogg Foundation’s Logic Model Development; CDC’s library of multiple sources
Sources of Existing Tools

3. Sources of information of specific measures
   - Mental Measurements Yearbook (Buros Institute)
   - Tests in Print (Buros Institute)
   - Tests: A Comprehensive Reference (Pro-Ed)
   - PsychINFO (http://www.psych.org)
Thank You

For more information

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