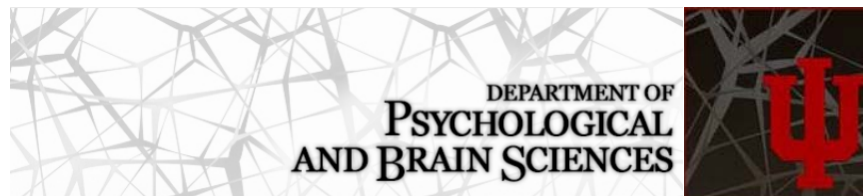


Instrumentation Issues in Implementation Science

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May 16, 2013





Agenda

- Introduction
- Stakeholder Survey Overview
- Key Instrumentation Issues
- Summary of Recommendations



Introduction

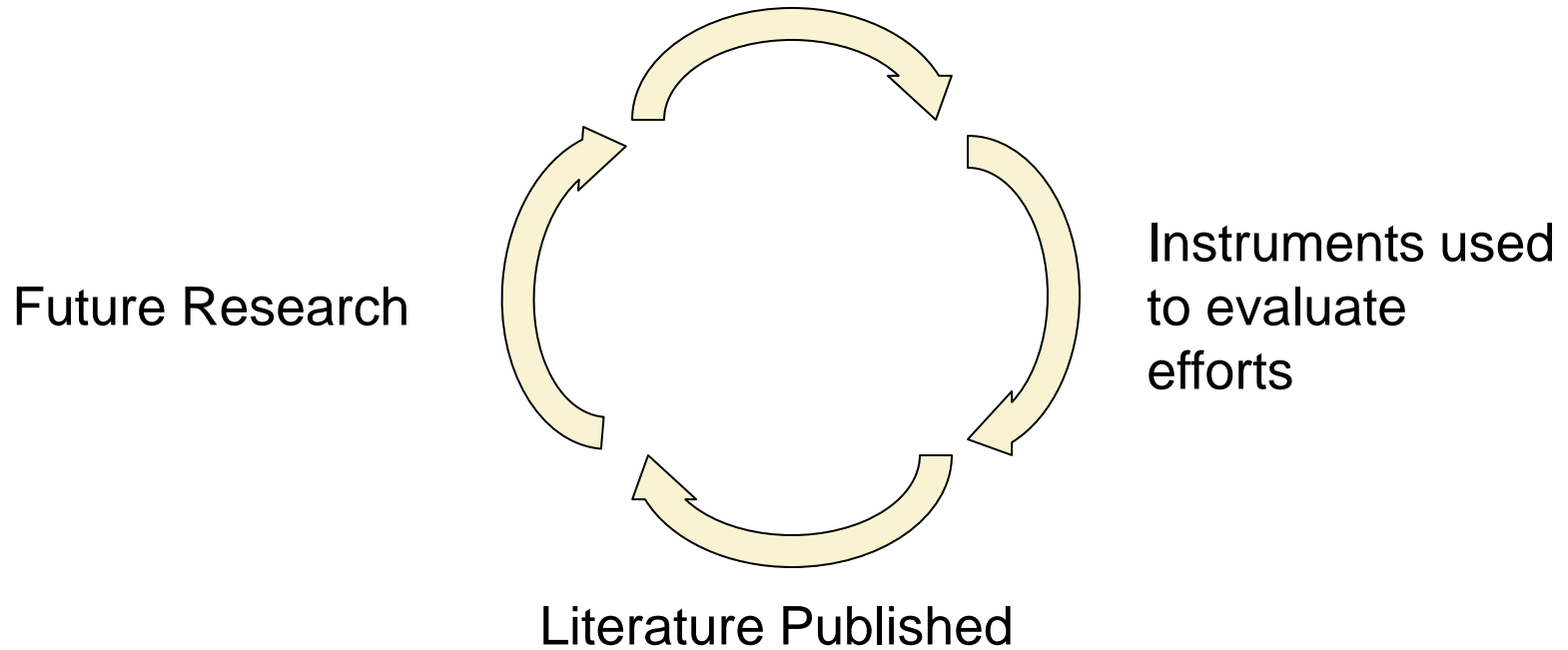
- “Science is measurement”
 - Siegel (1964)
- Is measurement scientific?
- A “praiseworthy rush” outpacing the science
- A “magnificent house with no foundation”



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The Foundation

Research studies conducted





Strong Measurement...

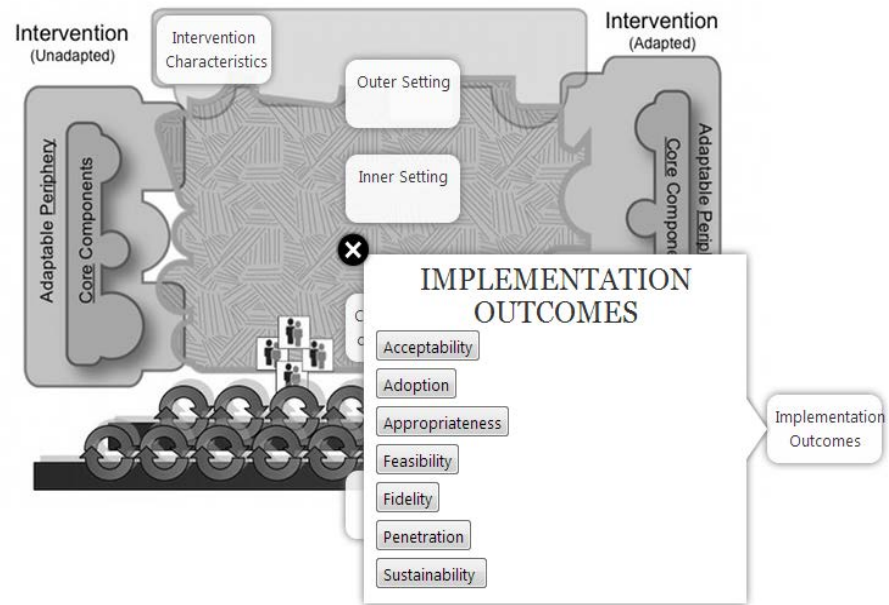
- Cascading consequences
 - Maximized Validity
 - Comparative Effectiveness Research
 - Cross-Study Comparison
 - Understanding Key Constructs Responsible for Change
 - Confidence, confidence, confidence



SIRC Instrument Review Project

- Attempt to systematically collect all instruments used in implementation science
- Identified 450+ instruments over 33 constructs
- 112 instruments assessing implementation outcomes
- 82% of instruments in I/O in 3 constructs

Consolidated Framework for Implementation Research

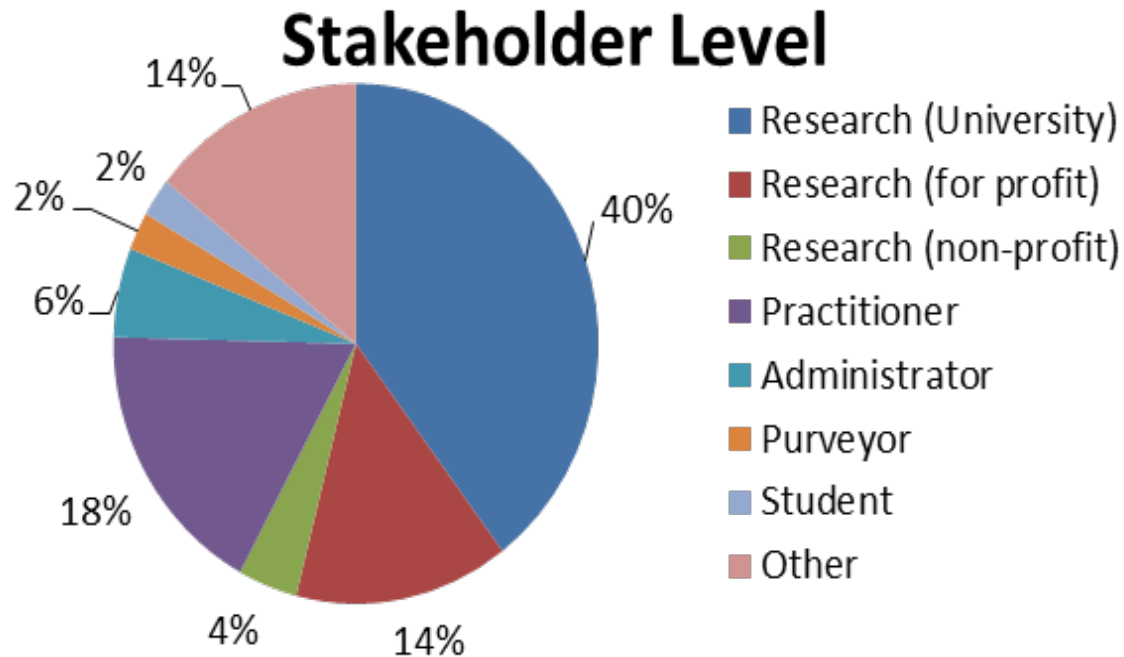


Acceptability	Adoption	Appropriateness	Feasibility	Penetration	Sustainability
51	26	8	14	5	8



Stakeholder Survey

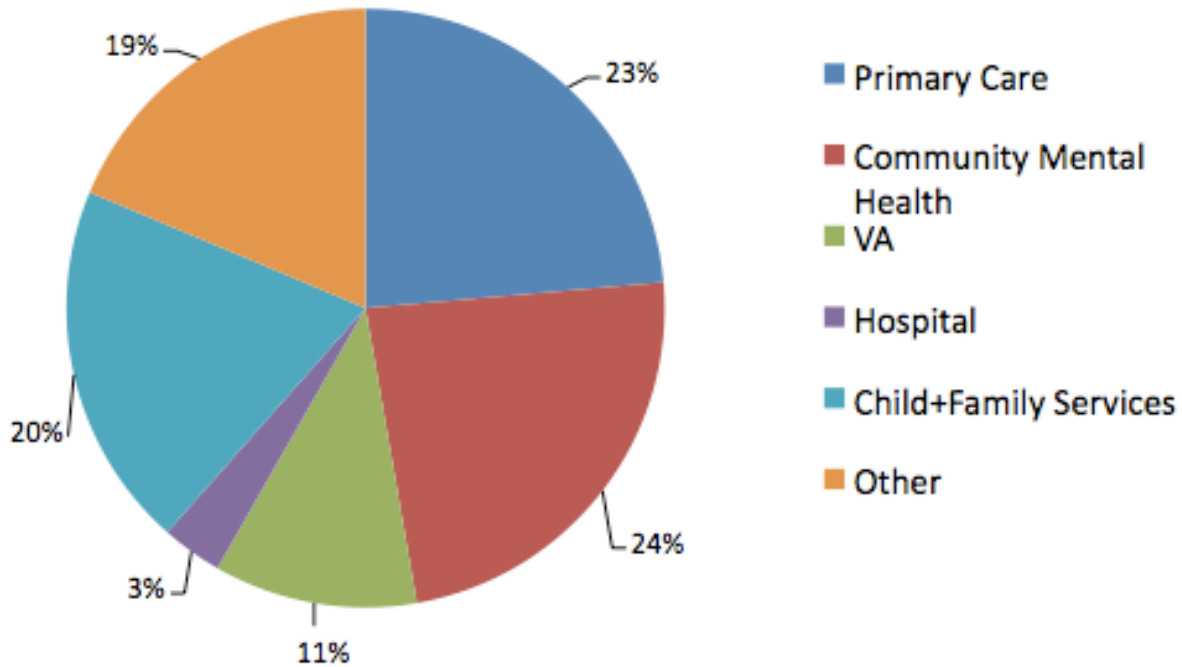
- $N=81$





Stakeholder Setting

Setting





Overview of Survey Findings

Top 10 issues

- | | |
|---|--|
| 1 | Use of instruments that have not been psychometrically validated |
|---|--|

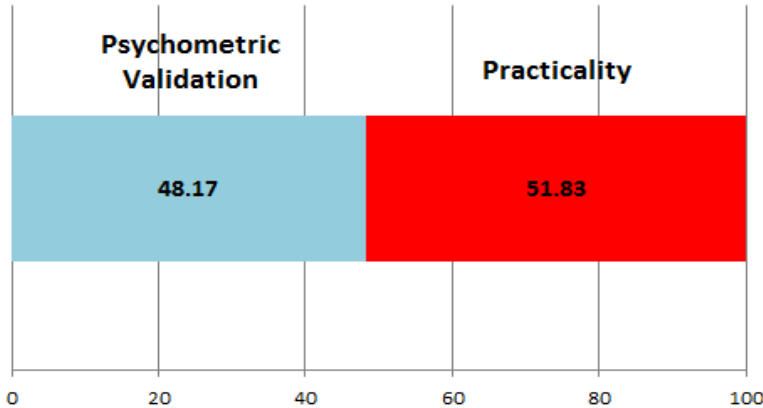


Psychometric Properties

- Multiple evaluations of psychometrics are necessary:
 - Reliability – the consistency of scores obtained from an instrument from one administration to the next
 - It is unacceptable to say simply, “the reliability of test X is .90”
 - Validity – the degree to which evidence and theory support the interpretation of test scores entailed by the proposed use of a test
 - “Validity...is the most fundamental consideration in developing and evaluating tests



Are Psychometrics Prioritized?



- Stakeholders prioritize practicality > Psychometric Validation
- Prioritization is translating
- No extensive validation: our “ruler” may not be measuring what we think it is

Construct	<i>M</i>	Usability
Acceptability	5.1	3.2
Adoption	4.9	2.8
Appropriateness	2.6	2.7
Feasibility	1.6	3.3
Penetration	7.6	3.3
Sustainability	3	3
Max score <i>M</i> =20 ; Max score Usability=4		



Recommendations

- Acknowledge the importance of writing formal instrument development procedures and personnel into grants
- Perform/report on multiple analyses of psychometric properties (CFA, EFA, α)
- Prioritize getting D&I instruments into the public domain
- Utilize SIRC Instrument Review Project to aid in instrument selection



Overview of Survey Findings

Top 10 issues

- 2 Theoretical frameworks to guide the implementation process and operationalize constructs



Frameworks

- Frameworks are used to guide evaluations
- Most used frameworks..
- Tabak et al. (2012)
 - 61 Dissemination & Implementation frameworks
- Damschroder et al. (2009)
 - “Many implementation theories...have been described...but have differing terminologies and definitions”
- Michie et al. (2009)
 - “Inconsistent terminology...limits meta-analyses” (cross-study)

Framework	Times Endorsed
Adoption of Innovation (Rogers)	25
Consolidated Framework for Implementation Research (Damschroder et al.)	23
Active Implementation Framework (Fixsen et al.)	21
Implementation Outcomes (Proctor et al.)	15
RE-AIM (Glasgow et al.)	14



Implementation Outcomes: An example

Appropriateness

- Perceived fit
- Relevance
- Compatability
- Practicability
- Suitability

Sustainability

- Maintenance
- Continuation
- Institutionalization
- Integration
- Sustained use



Recommendations

- Consider contributing to and utilizing the Consolidated Framework for Implementation Research wiki*
 - Provide an online collaborative space to:
 1. Refine and establish terms and definitions related to Imp & Imp Sci
 2. Promote consistent use of these terms and defitions
 3. Provide a foundation on which a knowledge base of findings related to imp can be developed
- Continue to utilize theoretical frameworks to guide evaluation efforts
- Contribute to the evaluation of theories and frameworks whenever possible



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Overview of Survey Findings

Top 10 issues

- 3 Need for communication within the field with respect to instrumentation



Need for Communication

- 50+ instruments for some constructs (i.e. acceptability, characteristics of individuals)
- 54% constructs are high priority (0-5 instruments) for instrument development (i.e. adaptability, intervention source)
- What constructs are stakeholders creating instruments for?
 - 7 stakeholders → Acceptability



Need for Communication

- Adapting instruments without reporting
 1. Exclusion/ addition of items
 2. Exclusion/ addition of factors/subscales
 3. Translating language
- Affects psychometrics



Recommendations

- Instrument redundancy/overlap
 - Consider utilizing SIRC Instrument Review Project to aid in instrument selection
- Instrument adaptation, report:
 - What was adapted (length, language)
 - How it was adapted (subscale dropped)
 - The potential consequences of that adaptation (altered psychometrics)



Summary of Recommendations

1. Acknowledge importance of proper test development procedures
2. Perform/report on tests of psychometric validity
3. Prioritize getting Dissemination and Implementation instruments into the public domain
4. Consider utilizing SIRC Instrument Review Project to choose instruments
5. Contribute to the evaluation of theories and frameworks whenever possible
6. Utilize theoretical frameworks to guide measurement
7. Report on adaptation of instruments
8. Consider utilizing the CFIR wiki to streamline terminology



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Questions?