MIXED METHODS IN DISSEMINATION AND IMPLEMENTATION RESEARCH

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Today

- Definition of terms
- Current and recent use of mixed methods in health services research
- Strengths of qualitative vs. quantitative data
- Three dimensions of methodological combination
- Five mixed method designs with particular relevance for D/I research
- Common barriers to using mixed method approaches
- Suggestions for better integrating the publication of mixed method research
Several new terms to describe research previously classified as “health services” or “outcomes” research

Pragmatic trials are designed to determine the effects of an intervention under the usual conditions in which it will be applied

- Vs. the highly controlled conditions of a classical efficacy trial
Definition of Terms

- Implementation research
  - “Scientific investigations that support movement of evidence-based, effective health care approaches from the clinical knowledge base into routine use” (Rubenstein and Pugh, 2006)

- Dissemination research
  - “The targeted distribution of information and intervention materials to a specific public health or clinical practice audience” (Glasgow et al., 2012)
Rationale for this Talk

- Employing mixed methods should be common practice in pragmatic trials and D/I research

- Understanding context is imperative
  - Must understand the *why* behind the success or failure of intervention implementation

- Mixed methods are particularly helpful in the quest to understand context
  - Generate data that are deep as well as broad

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Recent Use of Mixed Methods

- Recent increase in studies using mixed methods in health services and primary care research
- Particularly prevention-oriented studies:
  - Weight loss and active living
  - Immunizations
  - Cancer screening
  - Osteoporosis
  - Cardiovascular health
  - Substance abuse prevention
Current Use of Mixed Methods

- But still too few studies to help researchers interpret and understand the significant heterogeneity of trial results

- Only 47 of 1,651 empirical articles published 2003-2007 in four top-ranked health services journals used mixed methods (Wisdom et al., 2012)

- Reporting of key methodological components, especially qualitative methods, remains uneven
Quantitative Methods

- Emphasis on deduction, objectivity, and generalization is useful when measuring intervention and/or implementation outcomes.

- Involves testing and confirming hypotheses based on existing conceptual model and then obtaining a breadth, rather than a depth, of understanding of the predictors of successful implementation.
Qualitative Methods

- Inductive, contextual approach
- Useful when seeking to address aspects that are intensive, nonlinear, or may require interaction (e.g., study of processes)
- Useful for eliciting perspectives, values, and opinions of stakeholders, participants, or consumers
- Useful for understanding why evidence-based practices are un/successfully implemented
- Useful for identifying strategies for facilitating implementation
Common Methodological Combinations

- Quantitative data to study outcomes; qualitative data to study processes

- Quantitative data to measure aspects of content; qualitative data to understand the context

- Qualitative data to explore a phenomenon and generate a conceptual model and hypotheses; quantitative data to test the hypotheses to confirm the validity of the model
Integrating Methods

- Key to strong mixed methods research lies in the effective integration

- Combining and capitalizing on different methodological strengths increases both breadth and depth of understanding

- Effective integration is more than just collecting and then reporting two (or more) sets of results
Integrating Methods

- Data must be mixed
- Clarity about implications of choices re: the nature and timing of the integration is imperative

“The underlying logic of mixing is that neither quantitative nor qualitative methods are sufficient in themselves to capture the trends and details of the situation. When used in combination, both quantitative and qualitative data yield a more complete analysis, and they complement each other.” (Creswell et al. 2004)
Opportunities for Integration

- Merging the data
  - Two types of data are brought together to answer the same question or related questions

- Connecting the data
  - Analysis of one set of data leads to the need for and subsequent collection of another set of data

- Embedding the data
  - When qualitative studies of process or context are embedded within larger quantitative studies of outcomes to obtain depth or expansion
In both study design and analysis, researchers must understand (and be able to make explicit) the rationale for

- Order and sequencing
- Priority
- Purpose

- For each of the methods used
- For the particular combination
Order and Sequencing

- Methods may be simultaneous or sequential
- “Expansion” or “explanation” = Using one method to answer questions that emerged following data collection using another method
- “Development” = Using qualitative methods to generate initial data that will enable the effective use of other methods
- “Sampling” = Using one method to identify a sample of participants that will be used by another method
One method is typically operationalized as the dominant or primary method.

Most D/I studies have treated quantitative methods as the primary method.

However, the two types are often given equal weight when evaluating fidelity and assessing implementation barriers and facilitators.
Different methods may be used to answer the same question ("convergence") or related questions ("complementarity")

Convergence may occur in one of two forms:
- Triangulation
- Transformation
Creswell (2012) has identified several mixed method design typologies.

Five are particularly relevant to D/I research:

- Convergent Parallel Design
- Explanatory Sequential Design
- Exploratory Sequential Design
- Embedded Design
- Multiphase Design
Simultaneous collection of quantitative and qualitative data, then merging the two types together

Example:

- Pragmatic trial to improve the delivery of evidence-based care for the prevention and management of cardiovascular disease in primary care practices using practice facilitation (Liddy et al., 2011)
Explanatory Sequential Design

- Two sequential phases:
  - Quantitative data collected first
  - Followed by qualitative data collection to help explain the quantitative data

- Example:
  - Study to evaluate a workshop designed to increase practitioner awareness of best practice recommendations for secondary stroke prevention and identify barriers to implementation in rural practices (Warner et al., 2010)
Two sequential phases, but in opposite order:
- Qualitative data collected first
- Followed by quantitative data collection to provide breadth for emergent relationships

Example:
- Study examining clinician’s perceptions about delivering preventive counseling in a brief primary care encounter (Sussman et al., 2006)
Embedded Design

- Data collection may be either concurrent or sequential
- One form of data is embedded within another form, and thus one form is supportive of the other

Example:
- Study to better understand the lack of compliance with mammography screening and design intervention strategies (Puschel and Thompson 2011)
Multi-Phase Design

- A series of phases or separate studies, each of which may use a combination of sequential and/or concurrent phases

- Example:
  - Development and evaluation of an education program for health care professionals and community leaders on how to design, implement, and evaluate a fall prevention program (Scott et al. 2011)

- Recent increase in innovative implementation research using multiphase designs
Barriers to Using Mixed Methods

- Why are mixed methods not more commonly implemented?
- Difficulty of gathering and/or accessing data that are nonlinear, or time- or interaction-intensive (e.g., process data)
- Siloization of methodological expertise
Barriers to Publishing

- Barriers to publishing or otherwise disseminating results of mixed methods studies
- Writing stage: Word limits constrain discussion
- Review stage: Appropriate reviewers difficult to find
- Review stage: Quality difficult to assess
Limitations in Effective Dissemination

- Also limitations to how effectively results will be disseminated

- Results often segregated in different publications that reach limited and often nonclinical audiences

- Stange et al. (2006) suggest five ways to better integrate the publication of mixed method research
Suggestions for Better Integration

- Improve connection between separate articles
- Publish separate articles in same journal
- Publish an integrated single article
- Publish three articles
- Develop online discussion
Pragmatic trials and D/I research key to improving health and healthcare delivery

Focus on real-world applications of interventions shown to be efficacious under artificial conditions

Understanding of the context in implementation is necessary

Quantitative data should not stand alone without an understanding of the impact of context on the results

Qualitative data alone are likely to provide limited insight

Combining strengths enables translation to real-world settings
THANK YOU!

QUESTIONS?

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References

References


