

Mixed Methods Frameworks: What are they and what can they be used for?

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Who am I and how am I qualified?

- Faculty in CSPH, Health Systems Management and Policy
- Health Services Researcher
- PhD in public health, policy
- Some training in quantitative and qualitative research methods
- Actively engaged in mixed methods research

- I am still learning

Why mixed methods?

- Quantitative and qualitative methods both have strengths and weaknesses
 - Quantitative
 - Causality, generalizability, and/or magnitude of effects
 - Qualitative
 - Why or how a phenomenon occurs
 - Theory development and testing
 - Measuring difficult to quantify things such as human experience
- Mixed Methods can access the strengths of both quant and qual

What are mixed methods frameworks?

- Mixed methods can get complicated
- A framework gives clarity about how the various methods fit together and integrate
- A framework is not a method
 - For both the quantitative and qualitative portions you still need to be specific about what method you are using

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DOI: 10.1111/1475-6773.12117

INTEGRATING MIXED METHODS IN HEALTH SERVICES AND DELIVERY
SYSTEM RESEARCH

Achieving Integration in Mixed Methods Designs—Principles and Practices

Michael D. Fetters, Leslie A. Curry, and John W. Creswell

Abstract. Mixed methods research offers powerful tools for investigating complex processes and systems in health and health care. This article describes integration principles and practices at three levels in mixed methods research and provides illustrative examples. Integration at the study design level occurs through three basic mixed method designs—exploratory sequential, explanatory sequential, and convergent—and through four advanced frameworks—multistage, intervention, case study, and par-

Table 1: Levels of Integration in Mixed Methods Research

<i>Integration Level</i>	<i>Approaches</i>
Design	3 Basic designs Exploratory sequential Explanatory sequential Convergent 4 Advanced frameworks Multistage Intervention Case study Participatory—Community-based participatory research, and transformative
Methods	Connecting Building Merging Embedding
Interpretation and Reporting	Narrative—Weaving, contiguous and staged Data transformation Joint display

Design Level

Basic

- Exploratory Sequential
- Explanatory Sequential
- Convergent

Advanced

- Multistage
- Intervention
- Case study
- Participatory

Basic: Exploratory Sequential

- Qualitative to quantitative

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Law Enforcement and Gun Retailers as Partners for Safely Storing Guns to Prevent Suicide: A Study in 8 Mountain West States

Carol W. Runyan PhD, MPH, Ashley Brooks-Russell PhD, MPH, Sara Brandspigel MPH, Marian Betz MD, MPH, Gregory Tung PhD, MPH, Douglas Novins MD, and Robert Agans PhD

[+] Author affiliations, information, and correspondence details

Accepted: July 07, 2017 Published Online: October 11, 2017

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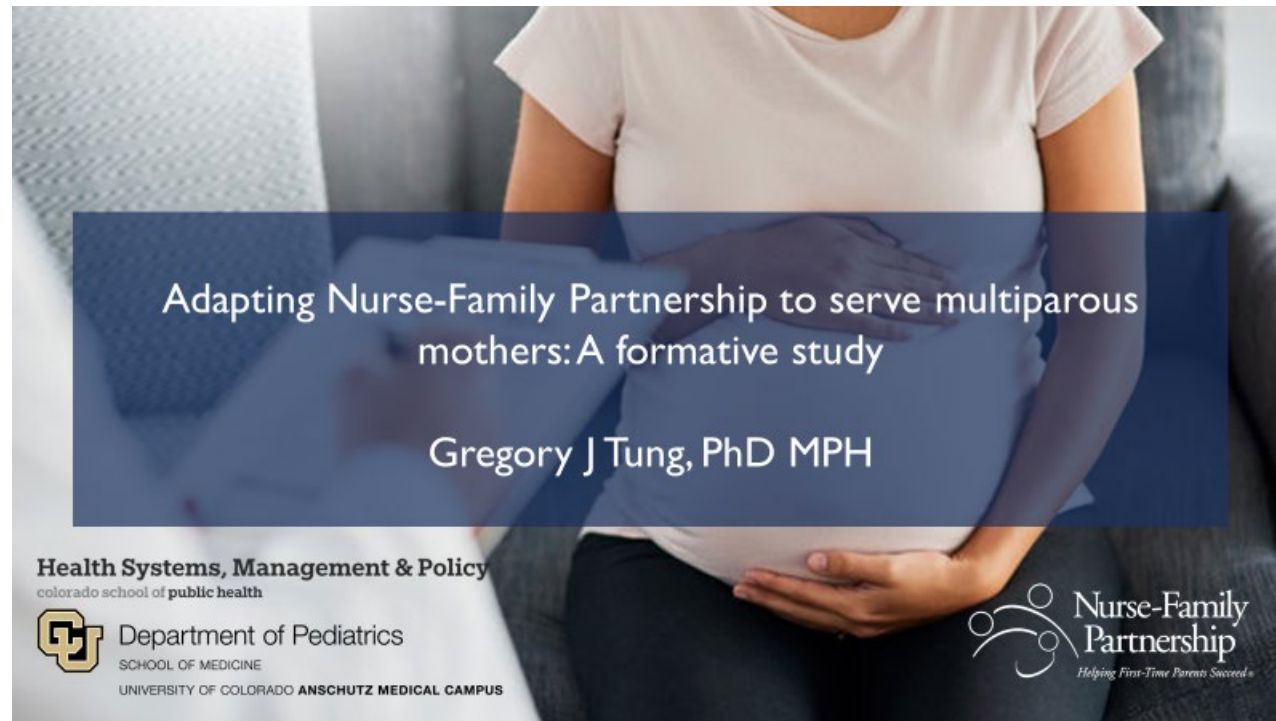
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Basic: Explanatory Sequential

- Quantitative to qualitative

Quasi-Experimental Study of Nurse Family Partnership for Multiparous women



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 Nurse-Family
Partnership
Helping First-Time Parents Succeed

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Basic: Convergent

- Simultaneous or iterative quantitative and qualitative

Evaluation of the Accountable Care Collaborative

Final Report

October 31, 2016

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Design Level

Basic

- Exploratory Sequential
- Explanatory Sequential
- Convergent

Advanced

- Multistage
- Intervention
- Case study
- Participatory

Advanced: Multistage

- Three or more sequential components or two or more convergent components

Advanced: Intervention

- Focus on intervention development and testing
- Qualitative to inform intervention development – Quantitative to test/estimate program effects – Qualitative to contextualize quantitative findings and explore mechanisms of action

Advanced: Case study

- Multiple quantitative and qualitative components triangulated to build a comprehensive case



Adapting Nurse-Family Partnership to serve multiparous mothers: A formative study

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**Nurse-Family
Partnership**
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METHODS

- Case study framework
- Sources of data
 - descriptive statistics that characterize program scale and scope and the population served
 - findings from a grounded theory based qualitative investigation of NFP nurse and other key informant experience in the formative study
 - survey of collaboration dynamics
 - findings from a grounded theory based qualitative interviews with mothers served by the pilot
 - practice experience of the pilot program implementers.

Advanced: Participatory

- Incorporating the voice/perspective of the focus population and/or community.

Practice Full Report

SDC

Kids, Cops, and Community: A Qualitative Assessment of Police, Youth, and Parent Perceptions of Each Other

Nicole M. Harty, MPH; Brett Friedman, MPH; Gregory J. Tung, PhD, MPH

ABSTRACT

Context: Police and communities alike have experienced many traumatic incidents over the last 4 years, prompting police departments across the country to rethink their approach to community programs.

Program: Aurora's Gang Reduction Impact Program (A-GRIP) launched "Kids, Cops, and Community" (KC&C) in Aurora, Colorado, as a community-based quality improvement project designed to improve community relations by better understanding Aurora police and community members' perceptions of each other and current A-GRIP and Aurora for Youth programs by assessing police, youth, and parents' perceptions of each other.

Implementation: After a review of current scientific literature on police-community relations, a KC&C advisory group oversaw the creation of key informant interview and focus group guides. A-GRIP recruited participants for 37 interviews (20 police, 8 youth, and 9 parents) and 3 youth focus groups. The community advisory group assisted in the development of salient themes and practical recommendations. The final report outlined 5 major themes (pros/cons of types of police interactions, respectful communication, false uniqueness effect, parenting and police as parents, and youth-police programming awareness) and 2 specific recommendations (sustain/increase opportunities for police-youth interactions and increase community awareness of youth programming).

Evaluation: A GRIP members had a rich discussion of the implications of these findings in which there was broad support

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Method level integration

- Connecting
- Building
- Merging
- Embedding

Connecting

- Linkage of qualitative and quantitative data through the sampling frame



Aligning Health and Social Systems to Expand Evidence-Based Home-Visiting

Principal Investigators: Venice Ng Williams, PhD, MPH, Assistant Professor, CU Anschutz Medical Campus, Prevention Research Center for Family & Child Health, Gregory J. Tung, PhD, MPH, Associate Professor, Colorado School of Public Health, and Mandy A. Allison, MD, Children's Hospital Colorado

This study tests the effectiveness of multi-sector financing and delivery strategies in expanding the reach and impact of the Nurse-Family Partnership (NFP) program across the U.S. Despite rigorous evidence of its ability to improve health and social outcomes for low-income pregnant women and their children, the NFP home visiting program currently reaches only a small proportion of the communities and families who could benefit from it. The study will use national, longitudinal data on NFP sites across the U.S. to estimate how alternative forms of multi-sector community collaboration influence program implementation and outcomes, including comparisons between healthcare-financed sites and social service-financed sites. Researchers at the University of Colorado are collaborating with the NFP National Service Organization, Illuminate Colorado, and Children's Hospital Colorado to conduct the study. Findings will be used in case studies of high-performing NFP sites and best practice models that community stakeholders can use to enhance NFP implementation and financing.

Building

- Results from one method inform the data collection of the other method

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Merging

- Combining quantitative and qualitative data together for analysis and comparison



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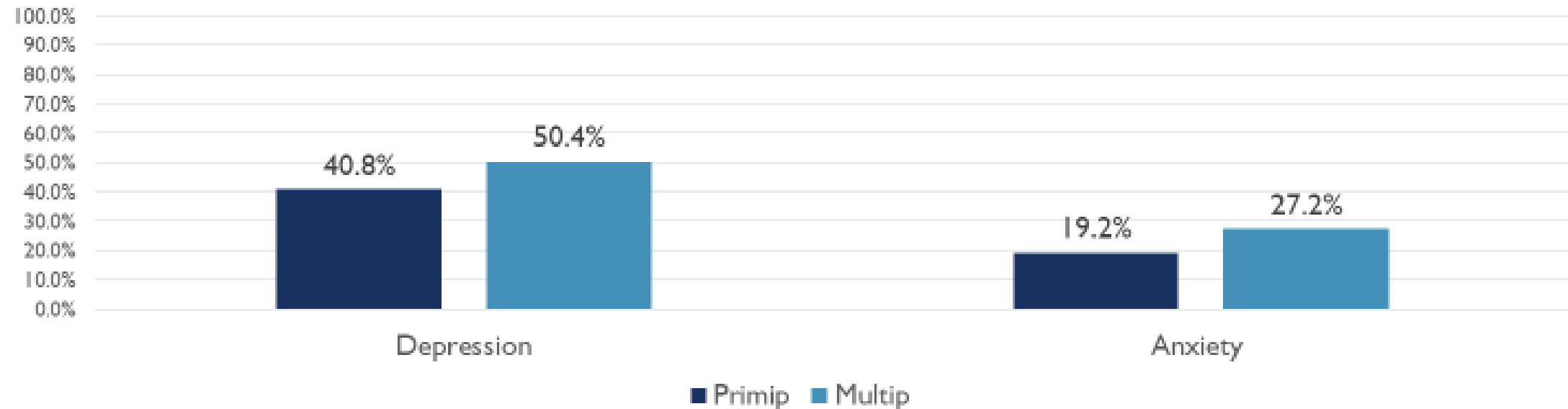
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 **Nurse-Family Partnership**
Helping First-Time Parents Succeed

MULTIPAROUS MOTHERS IN OUR FORMATIVE WORK
WERE HIGHER-RISK

MENTAL HEALTH

% with Moderate or Severe Depression and Anxiety
Based on Validated Screener



SOCIAL WORKER

“Some of our multips that are dealing with homelessness or kids that are sick, it just weighs heavier on them because they have more babies to care for...that they love and they want to protect, and I think that it just puts them at increased risk, you know, for depression and anxiety, and just makes overall everything harder for them to get taken care of.”

Embedding

- Data collection and analysis are linked at multiple points
 - Combines connecting, building, and merging at various points
 - Feters Et al. state that embedding is especially important in intervention advanced designs

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Interpretation and reporting

- Narrative – Weaving, continuous, and staged
- Data transformation
- Joint display

Narrative

- Weaving
 - Reporting quantitative and qualitative results together by theme or concept
- Continuous
 - Reporting quantitative and qualitative results in the same paper/report but in distinct sections
- Staged
 - Reporting quantitative and qualitative results separately in their own paper/report

Data Transformation

- One type of data is converted to the other

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RESEARCH ARTICLE

Ignition Interlock Laws: Effects on Fatal Motor Vehicle Crashes, 1982–2013

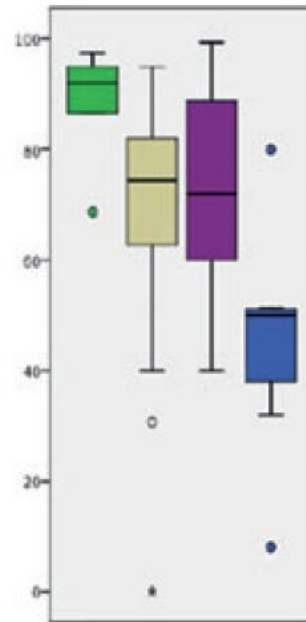


Emma E. McGinty, PhD, MS,¹ Gregory Tung, PhD, MPH,² Juliana Shulman-Laniel, MPH,³
Rose Hardy, MPH,² Lainie Rutkow, JD, PhD, MPH,³ Shannon Frattaroli, PhD, MPH,³
Jon S. Vernick, JD, MPH³

Introduction: Alcohol-involved motor vehicle crashes are a major cause of preventable mortality in the U.S., leading to more than 10,000 fatalities in 2013. Ignition interlocks, or alcohol-sensing devices connected to a vehicle's ignition to prevent it from starting if a driver has a predetermined blood alcohol content (BAC) level, are a promising avenue for preventing alcohol-involved driving. This study sought to assess the effects of laws requiring ignition interlocks for some or all drunk driving offenders on alcohol-involved fatal crashes.

Joint Displays

Figure 2: Example of Joint Display Illustrating Integration at the Interpretation and Reporting Level from the ADAPT-IT Project—Potential Ethical Advantages for Patients When Using Adaptive Clinical Trial Designs



The adaptive clinical trial design poses ethical advantages from the patient's perspective

Consultant biostatistician

- *When done well they [ACTs] treat patients in and out of the trial better. (survey)*
- *On participants' understanding the complexity of an ACT sufficiently to give informed consent: I think it's a false concern. When you do studies that people have consented for traditional clinical trials, [people feel] the purpose of the trial is to improve their individual outcome, and the number who in any kind of quantitative way who understand the randomization is very low. (mini-focus group)*

Clinician

- *I think it only make sense that if you are going to avoid exposing subjects to ineffective therapies...that's the ethically obligatory thing to do. (mini-focus group)*
- *There is no problem explaining to [the] patient that if we find one arm to be clearly inferior we drop...[that treatment], and one to be clearly superior we'll stop [the trial] early. (mini-focus group)*

Other key stakeholder

- *Whether or not an adaptive trial really offers ethical advantages, patients will perceive "a new and different" approach aimed at time issues and increased communication as progressive. (survey)*

Academic biostatistician

- *It depends on the design, but it may be more advantageous to have a higher probability of being randomized to the active arm. (survey)*

Assessing the fit of mixed methods results

- Confirmation
 - Results confirm one another
- Expansion
 - Finding new insights into the phenomenon of interest
- Discordance
 - Results contradict one another

Final thoughts

- There are other mixed methods frameworks
- A framework is not a method
 - You still need to specify both your quantitative and qualitative methods
- A framework can help to bring additional clarity to sometimes complicated mixed methods research and proposals

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