Care Teams Research: The Importance of Theory, Fidelity, Climate and Causality

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ACADEMYHEALTH 2009
METHODS FOR STUDying ORGANIZATIONAL EFFECTS
Presentation Organization

- Methods & Theory
- INTACT Conceptual Model & Hypotheses
- Methods
  - Sampling Strategies
  - Measurement and Power
- Results
  - Client and staff outcomes
  - Team level mediated effects
- Acknowledgements
  - Based on INTACT: Improving Networks & Teamwork in Assertive Community Treatment
  - National Science Foundation, David Knoke (Co-PI), Xi Zhu, Pri Shah, Mary Zellmer-Bruhn, Ayse Gurses, Pinar Karaca-Mandir, Michelle Duffy, Yuqing Ren, Katie White, David Knutson, Tom Witheridge
“Science is based on counterfactuals and theoretical models. Human knowledge is produced by constructing counterfactuals and theories. Blind empiricism unguided by a theoretical framework for interpreting facts leads nowhere.”

The knowledge that transfers between studies is theories rather than “lumps of data”
- Naming & Shaming: Provider report cards, School rankings

“Produce theories in the form of ‘generative causal propositions’ which relate mechanisms, context and outcomes. … simplify all processes down to an essential core of attributes.”
• Lay theories “as it is expressed in our everyday language and experience … common-sense or naive psychology”
  o Heider, The Psychology of Interpersonal Relations, 1958: 4-7
  o We can learn from common sense just as we can learn from folk medicine but is it adequate as science?
  o Do we need to avoid pseudo-science that looks like science because it uses sophisticated methods?

• Theory
  o Organizational Behavior, Organizational Theory, Management Science
INTACT: Improving Networks & Teamwork in Assertive Community Treatment - Conceptual Model

**Context**
- Policies, Funding, Institutional Supports, Incentives, Staffing, Delegation, Coaching, Training

**Fidelity**
- Team Composition, Meetings, Treatment Planning, Protocols

**Moderating Team Processes**
- Learn-How/Learn-What, Constructive Controversy, Helping

**Meditating-Team Processes**
- Lean Management (low waste, obtain information easily)

**Moderating Emergent States**
- Psychological Safety, Social Capital, Transactive Memory

**Mediating Emergent States**
- Encounter Preparedness

**Teamwork**

**Outcomes**
- Client Outcomes
- Staff Outcomes
Teams: What is a team?

A team is “(a) two or more individuals who (b) socially interact (face-to-face or, increasingly, virtually); (c) possess one or more common goals; (d) are brought together to perform organizationally relevant tasks; (e) exhibit interdependencies with respect to workflow, goals, and outcomes; (f) have different roles and responsibilities; and (g) are together embedded in an encompassing organizational system, with boundaries and linkages to the broader system context and task environment.”

## Sampling Strategies

<table>
<thead>
<tr>
<th>Sampling Strategies</th>
<th>Examples</th>
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</thead>
</table>
| Convenience         | Assertive Community Treatment teams (NSF)  
|                     | Full population in Minnesota |
| Generalizability    | Congestive Heart Failure (RWJ/INQRI)  
|                     | Full population in Medical Centers in VA |
| Theory testing      | Primary Care Practices (NPCRDC)  
|                     | Phase: Qualitative study comparing practices in deprived and non-deprived areas |

- Maximize variability in key independent variables
# Measurement: Fidelity & Climate in ACT

## Fidelity: Team Design
(Necessary, not sufficient)

- The fit of the implementation with evidence standards
- Targeted population
- Structures
  - Team
  - Appropriate DOL (KSAs)
- Coordination
  - Daily team meetings
- Formalization
  - Treatment Plans linked to encounters
- [http://www.actassociation.org/fidelity/](http://www.actassociation.org/fidelity/)

## Teamwork & Climate

- Mediating Processes
  - Lean management
- Mediating States
  - Preparedness
- Moderating Processes
  - Learn what / learn how
  - Constructive controversy
- Moderating States
  - Psychological safety
  - Social capital
  - Transactive memory systems
Measurement

● Customization: Concepts to Measures
  ○ Psychological safety in ACT
    ▪ I felt that it was easy to ask for a change in the time of a visit.
    ▪ I felt that it was easy to ask for a partner to accompany me on a visit.
  ○ Take-away
    ▪ Are off the shelf instruments adequate for precise measurement?
    ▪ Do off the shelf instruments reduce response rates?
    ▪ Instruments have to be translated to specific research context

● Measurement validation
  ○ Item level – construct validity - convergent and discriminant validity
  ○ Team level measures: Intraclass correlation – is there similarity within teams and differences across teams?
<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Alpha</th>
<th>F (Prob)</th>
<th>ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constructive Controversy</td>
<td>“The critical and open discussion of divergent perspectives including task related facts, data and opposing ideas.”</td>
<td>0.80</td>
<td>3.62 (0.00)</td>
<td>0.18</td>
</tr>
<tr>
<td>Psychological Safety</td>
<td>“A shared belief that the team is safe for interpersonal risk taking.”</td>
<td>0.86</td>
<td>2.69 (0.00)</td>
<td>0.13</td>
</tr>
<tr>
<td>Learn-What</td>
<td>Involvement in activities that identify the best practices that are currently available.</td>
<td>0.79</td>
<td>1.22 (0.22)</td>
<td>0.02</td>
</tr>
<tr>
<td>Learn-How</td>
<td>Involvement in activities that operationalize practices in a given setting and solve problems by trials and errors.</td>
<td>0.90</td>
<td>1.99 (0.00)</td>
<td>0.08</td>
</tr>
<tr>
<td>Low Waste / Lean*</td>
<td>Low waste in searching for information and resources.</td>
<td>0.68</td>
<td>3.80 (0.00)</td>
<td>0.19</td>
</tr>
<tr>
<td>Encounter Preparedness</td>
<td>The degree to which ACT team members feel prepared to perform their tasks.</td>
<td>0.79</td>
<td>3.02 (0.00)</td>
<td>0.16</td>
</tr>
</tbody>
</table>
1-Almost never, Occasionally, Often, Usually, 5-Almost always
Results: Team Level Models of Encounter Preparedness (n=26, Mediation analysis)

<table>
<thead>
<tr>
<th></th>
<th>Constructive Controversy</th>
<th>Psych. Safety with Team Lead</th>
<th>Obtain Information Easily</th>
<th>Encounter Preparedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.08</td>
<td>-0.16</td>
<td>-0.02</td>
<td>0.18</td>
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<tr>
<td></td>
<td>2.22</td>
<td>0.96</td>
<td>-0.02</td>
<td>-0.02</td>
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<tr>
<td>Fidelity</td>
<td>-0.16</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>-0.44</td>
<td>0.96</td>
<td>-0.02</td>
<td>-0.02</td>
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<tr>
<td>Team Size</td>
<td>0.03</td>
<td>0.03</td>
<td>0.18</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>0.74</td>
<td>0.03</td>
<td>0.18</td>
<td>0.28</td>
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<tr>
<td>Interdependence</td>
<td>1.66</td>
<td>0.31</td>
<td>-0.17</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>2.64</td>
<td>4.03</td>
<td>-0.48</td>
<td>-0.07</td>
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<tr>
<td>Constructive Controversy</td>
<td></td>
<td>0.52</td>
<td>1.67</td>
<td>-0.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.09</td>
<td>3.18</td>
<td>-0.28</td>
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<td>Psych. Safety with Team Lead</td>
<td></td>
<td>1.67</td>
<td>-0.15</td>
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<td></td>
<td></td>
<td>3.18</td>
<td>-0.28</td>
<td></td>
</tr>
<tr>
<td>Obtain Information Easily</td>
<td></td>
<td></td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.31</td>
<td>0.85</td>
<td>0.60</td>
<td>0.56</td>
</tr>
</tbody>
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Effects of Preparedness on Staff and Clients

**Staff Outcomes**

- ↑ Preparedness
  - ↓ Negative affect, ↑ Positive affect
    - *The frustration effect!*
  - ↓ Burnout
  - ↑ Satisfaction
  - ↓ Turnover

**Client Outcomes**

- ↑ Preparedness
  - ↓ Hospital days due to mental illness
  - ↑ Independent living
Next Steps

- Causal modeling
  - Using contextual measures as instruments to do causal modeling

- Change over time
  - Will have three waves of data spaced at six month intervals linked with quarterly evaluations of client outcomes
Conclusion

- Methods are conditional on theory
  - Methods cannot save inadequate conceptualization
  - With good theory, methods are straightforward (but can be difficult)
- Sampling for theory testing is different than sampling for generalizability
- Instruments need to be customized to context for precise measurement and good response rates
- Many phenomena are nested
  - Team members or clients are nested within teams which are nested within sponsors
  - Concepts have to be validated at the appropriate theoretical level (intraclass correlations)