Influence of nurse social networks on evidence-based practice: Results of an exploratory study

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Learning objectives

• Role of relationships in the use of evidence in practice

• Relevance of social network research methods and terminology to examine the relationships and communications

• Implications for models of evidence-based practice (EBP) adoption, implementation, and adherence
“What is apparent in both the study and application of research utilization principles and methods is that it is a social process.”

Social network analysis provides a mechanism to explore context through the lenses of power, social capital, and interdependency.

Background
It’s still a long time from research to practice

17 years

Interventions not sustained
Nurses’ sources of clinical information

Theory
Theoretical framework

Diffusion of innovation

Social network theory

QI and EBP literature

Relational coordination theory (Gittell, 2000)
Social network theory, an amplification of diffusion of innovations
Why is this study different?

• Relationship focus (social network theory and methods)

• Explores perceptions of communication quality

• Unit level analysis*

* i.e., specific units within member and affiliate agencies in the same health system
Methods
Methods: Data Collection & Sample

Sample
7 Hospitals
7 Long-term care facilities
6 Home care agencies

Survey
• Paper or online (REDCap)
• Communication patterns
  • Who talked to whom
  • Frequency of communication
• Communication quality*
  • Openness (4 items)
  • Accuracy (4 items)
  • Timeliness (3 items)

*Adapted from ICU Nurse-Physician Questionnaire
Methods: Communication pattern variables

Node-based measures

• Density = interconnectedness

• Fragmentation = clumpiness (cliques)

• In-degree centralization (hierarchy)
Methods: Communication pattern variables

Continued

Distance and position-based measures*

• Average path length = distance between nodes
• Core-periphery = measure of node centrality
• Diameter = size of network

*These measures are unreliable when the response rate is less than 50%
Methods: Statistics

• Correlation of social network variables with communication quality variables (non-parametric)

• Significance set to 0.10
Results
Results: Sample

• 10 adult medical-surgical units (6 hospitals)
  • RN (n=163)
  • Nursing Assistants (n=68)
  • Care Coordinator (n=21) (RN & SW)
  • Supervisor (n=14)

• 6 long-term care facilities*
• 5 home care agencies*

* These findings are outside the scope of this presentation
**Correlation:** Communication Openness & Communication Patterns

<table>
<thead>
<tr>
<th>Communication Quality: Openness</th>
<th>Rho (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Pattern</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>-.80 (.005)</td>
</tr>
<tr>
<td>Fragmentation</td>
<td>.72 (.018)</td>
</tr>
<tr>
<td>In-degree Centralization</td>
<td>-.57 (.083)</td>
</tr>
</tbody>
</table>

_N=10 adult medical-surgical units_

**Interpretation:** Open communication (saying what you think) more likely to occur in small groups (fragmentation), rather than across the entire unit (density).
**Correlation: Communication Accuracy & Communication Patterns**

<table>
<thead>
<tr>
<th>Communication Pattern</th>
<th>Rho (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>.56 (.093)</td>
</tr>
<tr>
<td>Fragmentation</td>
<td>-.49 (.148)</td>
</tr>
<tr>
<td>In-degree Centralization</td>
<td>.34 (.334)</td>
</tr>
</tbody>
</table>

N=10 adult medical-surgical units

**Interpretation:** Accurate communication (believing the information you receive) is more likely to occur in an interconnected unit (density) rather than a unit with many cliques (fragmentation).
**Correlation:** Communication Timeliness & Communication Patterns

<table>
<thead>
<tr>
<th>Communication Quality: Timeliness</th>
<th>Rho (p)</th>
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<tbody>
<tr>
<td>Communication Pattern</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>.06 (.868)</td>
</tr>
<tr>
<td>Fragmentation</td>
<td>-.08 (.828)</td>
</tr>
<tr>
<td>In-degree Centralization</td>
<td>.36 (.343)</td>
</tr>
</tbody>
</table>

**Interpretation:** Suggests that these variables not appropriate to measure distance. Measures of distance removed due to low response rates.

N=10 adult medical-surgical units
Summary of key findings

• Open communication more likely in small groups (high fragmentation)
  • Staff have little fear of repercussion when speaking openly in a small group
  • Supports innovation & early adoption

• Accurate communication more likely where staff highly interconnected (high density)
  • Staff use the same information source(s)

This study suggests that social network methods may be a promising way to understand the research-practice gap
Limitations
Limitations

• Low response rate
  • Reduced the social network measures that could be analyzed

• Small sample size
  • Limited generalizability

• Characteristics of participants
  • Recruitment was done without sufficient consideration of those who could or did perform "coordination of care" communication tasks
Future studies

• Recruit a larger sample size and a broader range of hospital types

• Use an interprofessional perspective in study design and implementation

• Recruit participants based on roles and responsibilities for EBP protocol/task implementation

• Incorporate multilevel methods and analytic plans into study designs
“What is apparent in both the study and application of research utilization principles and methods is that it is a social process.”

Conclusions

• Knowledge is a social construction (Cross, Rice & Parker, 2001)

• Social network methods are useful to analyze communication patterns at the unit level

• Social network methods can be used to understand multilevel communication patterns within units and across agencies

• Findings from social networks studies may provide the knowledge needed to accelerate individual and institutional adoption of research findings in fewer than 17 years
Acknowledgements

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Questions and Comments

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