Measurement in the Knowledge Translation Field: Exploring Patterns of Research Utilization

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Outline

1. Introduction

2. Exploring Patterns
   • Mapping research utilization patterns in acute care settings
   • Extent and patterns of research utilization among nurses one and three years post-graduation

3. Small Group Discussion

4. Future Directions
What is Research Utilization?

Types of Research Utilization

- Instrumental
- Conceptual
- Symbolic/Persuasive
- Overall
Research Utilization Measure

- Single item measure
- Developed in 1996
- Time frame modifications
  - Past year, month, week, shift
- Scale modifications
  - 7 point (never to nearly every shift)
  - 5 point
    - never to very often
    - 10% or less to about 100%
- Reasonable variation over time
Exploring Patterns
Example 1

Mapping research utilization patterns in acute care settings
Developing a Valid and Reliable Measure of Research Utilization (2005-2007)

**Purpose:** To develop and assess an instrument that measures research utilization among health professionals

**Phase 1:** Expert Panel  
**Phase 2:** Focus groups

**Panel:**
- Carole Estabrooks (Canada)
- Jo Rycroft-Malone (UK)
- Carl Thompson (UK)
- Marita Titler (US)
- Anne Sales (US)
- Judith Ritchie (Canada)
- Jo Logan (Canada)
- Nancy Edwards (Canada)
- Donna Ciliska (Canada)
Translating Research in Acute Care Hospitals Study

4 Adult hospitals in Edmonton and Calgary

Nurses, physicians, allied health, specialists, and managers

4 types of research use measured:
  • **Instrumental**: Direct/concrete application of research findings
  • **Conceptual**: Indirect/cognitive use of research findings
  • **Persuasive**: Research used as a political tool
  • **Overall**: Use of research in any way

**Self-reported extent of research use during the past shift:**

1 = ‘10% or less of the time’
2 = ‘about 25% of the time’
3 = ‘**about 50% of the time**’
4 = ‘about 75% of the time’
5 = ‘about 100% of the time’
‘do not know’
### Variable-Oriented Approach

<table>
<thead>
<tr>
<th></th>
<th>Whole sample</th>
<th>Nurses</th>
<th>Allied</th>
<th>MDs</th>
<th>Practice Specialists</th>
<th>Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>*<em>IRU</em> Range:**</td>
<td>2.99 (1.38)</td>
<td>3.20 (1.43)</td>
<td>2.91 (1.36)</td>
<td>2.37 (1.24)</td>
<td>3.44 (1.28)</td>
<td>2.68 (1.27)</td>
</tr>
<tr>
<td><strong>CRU</strong> Range</td>
<td>2.75 (1.31)</td>
<td>2.67 (1.39)</td>
<td>2.78 (1.31)</td>
<td>2.77 (1.14)</td>
<td>2.83 (1.39)</td>
<td>2.84 (1.14)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Whole sample</th>
<th>Site 1</th>
<th>Site 2</th>
<th>Site 3</th>
<th>Site 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IRU Range:</strong></td>
<td>2.99 (1.38)</td>
<td>2.82 (1.49)</td>
<td>3.04 (1.36)</td>
<td>3.22 (1.33)</td>
<td>2.85 (1.48)</td>
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<tr>
<td>*<em>CRU</em> Range:**</td>
<td>2.75 (1.31)</td>
<td>2.59 (1.27)</td>
<td>2.84 (1.36)</td>
<td>3.05 (1.31)</td>
<td>2.51 (1.29)</td>
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* = One-Way ANOVA P-value <0.05
Exploring Research Utilization Patterns by Professional Group
Moderate use (use about 50% of the time)
Instrumental: n=95 (24%); Conceptual: n=74 (19%)
Research Utilization for Nurses  

N=127

Moderate use (use about 50% of the time)
Instrumental: n=31 (24%); Conceptual: n=17 (13%)
Research Utilization for Allied Providers  \( N=160 \)

Moderate use (use about 50% of the time)
Instrumental: \( n=37 \) (23%); Conceptual: \( n=34 \) (21%)
Research Utilization for Physicians  N=35

Moderate use (use about 50% of the time)
Instrumental: n=10 (29%); Conceptual: n=11 (31%)
Research Utilization for Practice Specialists  N=40

Moderate use (use about 50% of the time):
Instrumental: n=7 (18%); Conceptual: n=2 (5%)
Research Utilization for Managers  \( N=34 \)

- Moderate use (use about 50% of the time)
  - Instrumental: \( n=10 \) (30%)
  - Conceptual: \( n=10 \) (30%)

- Low Instrumental: \( n=9 \) (26%)
- High Instrumental: \( n=5 \) (15%)
- Low Conceptual: \( n=2 \) (6%)
- High Conceptual: \( n=2 \) (6%)
Exploring Research Utilization Patterns by Hospital Site
Exploring Patterns
Example 2

Extent and patterns among nurses one and three years post-graduation
The complexity of research use –

Extent and patterns among nurses one and three years post-graduation

(Full paper submitted to Journal of Advanced Nursing)

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Background

- Descriptive, cross-sectional study
- Instrumental, conceptual and persuasive research use at 1 and 3 years after graduation
- Data collected 2006 within a Swedish nationwide survey: the LANE project (Longitudinal Analysis of Nursing Education)
- Two cohorts of nurses, n=1365 (1 year), n=933 (3 years)
Three types of research utilization

- **Instrumental**: Direct/concrete application of research findings
- **Conceptual**: Indirect/cognitive use of research findings
- **Persuasive**: Research used as a political tool

(Estabrooks, 1999)

Self-reported extent of research use during the past four working weeks:
1=‘never’
2=‘on some shifts’
3=‘during about half of the working shifts’
4=‘during more than half of the working shifts’
5=‘on almost every shift’
’don’t know’
Objectives

- To describe the extent of research use in two cohorts of nurses, one and three years post graduation.

- To identify and describe the prevalence of naturally occurring research use patterns, by identifying clusters of nurses having similar research use profiles.
Variable-oriented approach

Research use one year after graduation

<table>
<thead>
<tr>
<th></th>
<th>Instrumental</th>
<th>Conceptual</th>
<th>Persuasive</th>
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<tbody>
<tr>
<td>Y1 mean (SD)</td>
<td>2.9 (1.5)</td>
<td>2.7 (1.3)</td>
<td>1.8 (1.0)</td>
</tr>
<tr>
<td>Y3 mean (SD)</td>
<td>3.0 (1.5)</td>
<td>2.7 (1.4)</td>
<td>1.8 (1.0)</td>
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</table>
Pattern-oriented approach

- Cluster analysis

- Identification of homogeneous clusters/subgroups of nurses presenting similar research use-patterns

- Cluster variables:
  Instrumental, Conceptual and Persuasive research use

- Ward’s hierarchical agglomerative method

- Computer software: SLEIPNER v. 2.1
Low users predominated

Low users

Very low users

n (Y1) = 280 (32%)     n (Y3) = 139 (22%)

n (Y1) = 120 (14%)     n (Y3) = 184 (29%)

n (Y1) = 400 (46%)     n (Y3) = 323 (51%)

Y1

Y3
Overall high users - Few but still existing

Overall high users

n (Y1) = 43 (5%)  n (Y3) = 45 (7%)
Additional profiles

Instrumental & conceptual users

- IRU: n (Y1) = 99 (11%)  
- CRU: n (Y3) = 64 (10%)

Instrumental & persuasive users

- IRU: n (Y1) = 40 (5%)  
- CRU: n (Y3) = 28 (5%)

Instrumental users

- IRU: n (Y1) = 197 (22%)  
- CRU: n (Y3) = 105 (17%)

Conceptual users

- IRU: n (Y1) = 99 (11%)  
- CRU: n (Y3) = 60 (10%)
Conclusions and new questions...

- Low extent of research use

- No difference between cohorts according to variable-oriented analysis.

- ‘Very low users’ more common at Y3.

- Low research use – a failure of educational system, health care organisation or both?

- Research use unchanged or deteriorating over time?
Why explore patterns?

- Focus on research users as individuals rather than on research use as a variable

- Illustrates the complexity of research use
  - Research use is more than just use or non-use
  - Different ‘types’ of use in different combinations resulting in different profiles (patterns)
  - May facilitate tailoring of interventions to increase research use
    - Tailored to different profiles (profiles by provider group and/or unit/site)
  - Potential to explore the connections between RU profiles and clinical outcomes
Can we measure what is happening in the black box?
Small group discussion

1. Do clinical outcomes differ among units with different patterns (or profiles) of research use?

2. Does a pattern-oriented approach to measuring RU facilitate the identification of appropriate interventions to increase RU and improve clinical outcomes?

3. Does a pattern-oriented approach help understand the “black box” on knowledge translation?
Future Directions
In Progress

• Concept clarity re research use. Parallel Project between Canada and Sweden (manuscript in progress)

• Review of instruments to measure instrumental research use (Canada and Sweden)