Prior Conditions Influencing Nurses’ Decisions to Adopt Evidence-Based Postoperative Pain Assessment Practices
Cathy Carlson

Purpose
• To test select elements of Rogers’ Diffusion of Innovations (2003) model by identifying factors, termed prior conditions, that influence registered nurses’ decisions, while caring for adults, to adopt evidence-based postoperative pain assessment practices.

The Problem: Unrelied Post-Operative Pain
• Postoperative pain is significant problem for patients as over 40 million operative procedures are performed each year in the United States (Center for Disease Control, n.d.)
• Pain undertreated 46 - 94% of the time in studies beginning over 30 years ago (Cohen, 1980; Klopfenstein et al., 2000; Marks & Sachar, 1973; Shea, Brooks, Dayhoff, & Keck, 2002; Svensson, Sjostrom, & Haljamae, 2000)
Strategies for Improving Practice

- Research has produced knowledge that makes successful elimination or control of pain possible
- Systematic literature review and summarization of empirical evidence has been formatted into evidence-based pain management practices through clinical practice guidelines
  - Acute Pain Management Guideline Panel, 1992
  - American Pain Society, 2003
  - American Society of PeriAnesthesia Nurses, 2003

A Model of Stages in the Innovation-Decision Process

Prior Conditions

- Previous practices
- Felt needs/problems
- Innovativeness
- Norms of the social system
Literature Review

• The literature has identified barriers that hinder the adoption of EBPMP

• Divided into three categories related to:
  – Health care professionals
  – Patients
  – Health care system

(Jacox, Carr, and Payne 1994)

Review of the Literature

• No studies were found that collectively examined the prior conditions in relationship to Rogers’ model
  – No studies were found that collectively examine the prior conditions influencing nurses’ decisions to adopt evidence-based postoperative assessment practices

Research Design

• Correlational descriptive study

• Survey research methods
Survey Questionnaire

- 12 pages, 56 items
- Characteristics of the nurse as an adopter - 8 items

Carlson’s Prior Conditions Instruments 30 Items

- Previous Practice Instrument - 11 items
  - I assess my patient’s pain level by asking the patient to rate his/ her pain.
- Felt Needs/ Problems Instrument - 6 items
  - Pain is generally well controlled where I work.
- Innovativeness Instrument - 6 items
  - Co-workers ask my opinion about new ideas/ practices.
- Norms of the Social System Instrument - 7 items
  - There is insufficient time to implement pain management strategies.

Survey Questionnaire cont...

- Systematic Pain Assessment
- Assessment of Patient’s Patient-Controlled Analgesia Device (PCA) Use
- Acceptance of the Patient’s Report of Pain
Level of Adoption

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Item</th>
<th>Scoring for Extent of Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>Have you read any literature discussing this nursing practice?</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Have you heard this nursing practice described at inservices or other professional conferences?</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Do nurses in your practice setting use this practice?</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Do you have any other sources of information about this nursing practice?</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Persuasion</td>
<td>Should nurses perform this nursing practice?</td>
<td>Yes = 1</td>
</tr>
<tr>
<td>Implementation</td>
<td>Do you _______?</td>
<td>Yes, sometimes = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, always = 2</td>
</tr>
</tbody>
</table>

Population and Study Sample

- All nurses who care for adult postoperative patients in two metropolitan hospitals in the Midwest
- 443 responses/945 possible
- 46.9% response rate

Procedure

- Nurses contacted directly or indirectly through two resource nurses
- Each participant received a booklet via their nursing supervisor, division director, or resource nurse via unit mailboxes and staff lounges
- Posters placed in staff lounges
- A large collection envelope was placed in each lounge for returned surveys.
- Resource person gathered booklets periodically and after two weeks.
Demographic Characteristics

- Age: 39.71 years
- Years of nursing experience: 13.19 years
- Number of sources used to identify solutions to clinical practice problems: 4.61
- Gender: 7% Male, 93% Female
- Certification: 87.9% no, 12.1% yes
- Plan to advance into a higher level nursing position: 59.6% no, 40.4% yes

Interaction Characteristics

Highest Degree in Nursing

- BSN: 31%
- ADN/ASN: 56%
- MS/MSN: 12%
- Diploma: 12%
- PhD: 0%

Number of Journals Read Regularly

- One: 39%
- Two: 13%
- Three or more: 4%
- None: 44%
Instrument Reliability

**Carlson’s Prior Conditions Instruments**
- Previous Practices: .747
- Pain Assessment: .689
- Pain Control Intervention: .753
- Pain Communication: .044
- Felt Needs/Problems: .726
- Innovativeness: .673
- Leadership: .784
- Reliance on Others: .356
- Norms of the Social System: .840

Instrument Reliability

**Postoperative Pain Assessment**
- Nursing Practice Questionnaire
- Systematic Pain Assessment: .642
- Assessment of Patient-Controlled Analgesia Device Use: .699
- Acceptance of Patient’s Report of Pain: .631
- Total Practice Score: .779
Level of Adoption of Three Evidence-Based Postoperative Pain Assessment practices

Level of Adoption Measured by PPA-NPQ

A Model of Stages in the Innovation-Decision Process


Level of Adoption of the Three Assessment Practices Combined

- Unaware: n = 11 2.5%
- Aware: n = 34 7.9%
- Persuaded: n = 88 20.3%
- Use Sometimes: n = 192 44.3%
- Use always: n = 108 24.9%

Mean Score = 2.77
### Systematic Pain Assessment

<table>
<thead>
<tr>
<th>Perception</th>
<th>Use Sometimes</th>
<th>Use Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unaware</td>
<td>54</td>
<td>3.4%</td>
</tr>
<tr>
<td>Aware</td>
<td>13</td>
<td>12.9%</td>
</tr>
<tr>
<td>Persuaded</td>
<td>46</td>
<td>11.0%</td>
</tr>
<tr>
<td>Use Sometimes</td>
<td>170</td>
<td>40.8%</td>
</tr>
<tr>
<td>Use always</td>
<td>133</td>
<td>31.9%</td>
</tr>
</tbody>
</table>

Mean Score = 2.75

### Assessment of Patient's PCA Device Use

<table>
<thead>
<tr>
<th>Perception</th>
<th>Use Sometimes</th>
<th>Use Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unaware</td>
<td>52</td>
<td>12.1%</td>
</tr>
<tr>
<td>Aware</td>
<td>21</td>
<td>4.9%</td>
</tr>
<tr>
<td>Persuaded</td>
<td>17</td>
<td>3.9%</td>
</tr>
<tr>
<td>Use Sometimes</td>
<td>94</td>
<td>21.8%</td>
</tr>
<tr>
<td>Use always</td>
<td>247</td>
<td>57.3%</td>
</tr>
</tbody>
</table>

Mean Score = 3.07

### Acceptance of Patient's Report of Pain

<table>
<thead>
<tr>
<th>Perception</th>
<th>Use Sometimes</th>
<th>Use Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unaware</td>
<td>64</td>
<td>14.9%</td>
</tr>
<tr>
<td>Aware</td>
<td>26</td>
<td>5.9%</td>
</tr>
<tr>
<td>Persuaded</td>
<td>92</td>
<td>21.4%</td>
</tr>
<tr>
<td>Use Sometimes</td>
<td>141</td>
<td>32.9%</td>
</tr>
<tr>
<td>Use always</td>
<td>106</td>
<td>24.7%</td>
</tr>
</tbody>
</table>

Mean Score = 2.46
Prior Conditions

<table>
<thead>
<tr>
<th>Prior Conditions</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Practice</td>
<td>4.20 Somewhat Supportive</td>
</tr>
<tr>
<td>Felt Needs/Problems</td>
<td>2.39 Somewhat Unsupportive</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>3.40 Neither supportive nor unsupportive</td>
</tr>
<tr>
<td>Norms of the Social System</td>
<td>3.50 Somewhat Supportive</td>
</tr>
<tr>
<td>Total Prior Conditions</td>
<td>3.36 Neither Supportive nor Unsupportive</td>
</tr>
</tbody>
</table>

Research Question #1

Are there relationships among the level of adoption of evidence-based postoperative pain assessment practices and: (a) prior conditions and (b) selected characteristics of a group of registered nurses including age, gender, highest level of nursing education, years of nursing practice, current specialty certification, number of nursing journals regularly read, resources utilized for clinical practice problems, and plan to advance into a higher level nursing position in the future?
### Significant Relationships

- **Prior conditions**
  - level of adoption of the three evidence-based postoperative pain assessment practices ($r = .128; p < .01$)
  - level of adoption of NP1, systematic pain assessment ($r = 0.166; p < .01$)
- **Previous practices**
  - level of adoption of NP1, systematic pain assessment ($r = 0.218; p < .01$)
  - level of adoption of NP3, acceptance of patient’s report of pain ($r = 0.153, p < .01$)

### Significant Relationships

- Number of sources used to identify solutions to clinical practice problems
  - the prior conditions ($r = .225; p < .01$)
  - previous practices ($r = 0.238; p < .01$)
  - innovativeness ($r = 0.23; p < .01$)
  - level of adoption of the three evidence-based postoperative pain assessment practices combined ($r = 0.181; p < .01$)
  - level of adoption of NP1, systematic pain assessment ($r = 0.209; p < .01$)
  - level of adoption of NP2, assessment of patient’s PCA device use ($r = 0.111; p < .05$)
- **Innovativeness**
  - age ($r = 0.096; p < 0.05$)
  - years of nursing experience ($r = 0.119; p < .05$)
  - level of adoption of NP1, systematic pain assessment ($r = 0.160, p < .01$)

### Other Significant Differences

- Reading one or two professional journals regularly
  - adopted the three evidence-based postoperative assessment practices ($F = 4.312; p < .01$)
  - adopted NP3, acceptance of the patient’s report of pain ($F = 3.924; p < .01$)
Findings for Research Question #2

Do prior conditions related to registered nurses’ pain management practices improve the ability to predict their level of adoption of evidence-based postoperative pain assessment practices?

Independent Variables for Regression

- Demographic Variables
  - Age
  - Gender
  - Highest level of nursing education attained
  - Years practiced as a Registered Nurse
  - Current certification in a nursing area
  - Number of professional journals read regularly
  - Number of resources used to solve clinical practice problems
  - Plan to advance to a higher level nursing position

- Prior Conditions
  - Previous practices
  - Felt needs/problems
  - Innovativeness
  - Norms of the social system

Level of Adoption of Three Assessment Practices with 13 IV

- Number of sources used to identify solutions to clinical practice problems \( R^2 = 0.048 \)
- Previous practices \( R^2 = 0.026 \)
- Innovativeness \( R^2 = 0.010 \)

Adjusted \( R^2 = 0.077 \)
Level of Adoption of Systematic Pain Assessment with 13 IV

- Number of sources used to identify solutions to clinical practice problems \( R^2 = 0.055 \)
- Previous practices \( R^2 = 0.033 \)
- Innovativeness \( R^2 = 0.130 \)

Adjusted \( R^2 = 0.094 \)

Level of Adoption of Acceptance of Patient’s Report of Pain with 13 IV

- Previous practices \( R^2 = 0.037 \)

Adjusted \( R^2 = 0.034 \)

Other Findings
Prior Conditions with 8 IV

- Number of sources used to identify solutions to clinical practice problems $R^2 = 0.051$
- Number of professional journals read regularly $R^2 = 0.018$

Adjusted $R^2 = 0.083$

Previous Practices with 8 IV

- Number of professional journals regularly read $R^2 = 0.054$
- Gender $R^2 = 0.009$

Adjusted $R^2 = 0.058$

Felt Needs/Problems with 8 IV

- Number of sources used to identify solutions to clinical practice problems $R^2 = 0.009$

Adjusted $R^2 = 0.009$
Innovativeness with 8 IV

- Number of professional journals read regularly \( R^2 = 0.102 \)
- Number of sources used to identify solutions to clinical practice problems \( R^2 = 0.021 \)
- Highest level of nursing education \( R^2 = 0.015 \)
- Years of nursing experience \( R^2 = 0.015 \)
- Desire to advance to a higher level nursing position \( R^2 = 0.013 \)

Adjusted \( R^2 = 0.155 \)

Norms of the Social System with 8 IV

- Gender \( R^2 = 0.031 \)
- Number of sources used to identify solutions to clinical practice problems \( R^2 = 0.011 \)

Adjusted \( R^2 = 0.038 \)

Conclusions

- Respondents were aware of but not using three evidence-based post-operative pain assessment practices consistently.

- Registered nurses’ previous practices and norms of the social system were supportive of adoption of the three evidence-based postoperative pain assessment practices.

- Nurses felt patients received adequate pain relief, which is unsupportive of adoption of the three practices as there is no impetus to change.
Conclusions

• Registered nurses who used multiple sources to identify solutions to clinical practice problems and read one or two professional nursing journals were more likely to have adopted the three evidence-based postoperative pain assessment practices.

• Registered nurses who perceived the prior conditions as being supportive of adoption of pain management practices were more likely to have adopted the three evidence-based postoperative pain assessment practices.

• Registered nurses who regularly read professional nursing journals and used more sources to identify solutions to clinical practice problems were more innovative.

Conclusions

• The number of sources used to identify solutions to clinical practice problems, previous practices, and innovativeness were predictive of registered nurses' adoption of evidence-based postoperative pain assessment practices.

• Number of professional journals read regularly, number of resources used to identify solutions to clinical practice problems, highest level of nursing education, years of nursing experience, and desire to advance to a higher level nursing position were predictive of innovativeness.

Recommendations: Education

• Emphasize evidence-based postoperative pain assessment practices

• Foster education through mass media and other types of communication
  - Professional nursing journals
  - Attending research conferences

• Education creates awareness and possibly persuasion
  - Adoption needs to be addressed by other means
Recommendations: Practice

• OPINION LEADERS

Recommendations: Research

• Further exploration of the large unexplained variance in adoption of evidence-based pain assessment practices is needed
• Further development of the Carlson’s Prior Conditions Instruments is needed
• Repeat study using a group of pain management practices and just not assessment practices
• Investigation into unanswered questions about how and why nurses’ make clinical decisions about postoperative pain assessment practices through phenomenological inquiry is needed to understand how nurses’ think and feel during decisions in their clinical practice.