Nursing Expertise – Beyond Novice to Expert

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Bridging Two Research Traditions

- Qualitative foundation
  - From Novice to Expert (Benner, 1984): Focus groups with nurses

- Quantitative application
  - Survey measures for hospital outcomes research
Research Objective

To develop valid and reliable survey measures of clinical nursing expertise
To introduce nursing expertise into health outcomes research

Why study expertise?

- A nurse is *not* a nurse is *not* a nurse.
- Expertise influences:
  - the quality of clinical interventions
  - nurses’ non-clinical functions, e.g. coordinating a therapeutic team of providers.
What research questions could we ask about expertise?

- Do certain types of practice environments cultivate clinical nursing experts?
- Do expert nurses improve patient outcomes?

Instrument Development

- How to measure expertise?
- Who can judge a nurse’s expertise?
- Nurses? Managers? Nurse colleagues?
- Let’s ask all three…
The Clinical Nursing Expertise Survey

35-items comprising Benner’s roles and functions from “From Novice to Expert”

Instructions:
Considering your daily nursing practice in your current job, how would you describe your level of ability with the following nursing roles and functions?

Sample Items From Survey

- Establishing trust and good communication with patients and families.
- Creating and implementing skin and wound care strategies that foster healing and comfort.
- Setting priorities to effectively coordinate and meet multiple patient needs and requests.
Response categories

My level of ability for this nursing role or function is:

<table>
<thead>
<tr>
<th>Beginning Level</th>
<th>Intermediate Level</th>
<th>Highest Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Phase I: Testing

- **Sponsor:** NINR K01
- **Design:** multi-source assessment of expertise
- **Sample:**
  - 63 staff nurses
  - 4 clinical director / clinical nurse specialist pairs
  - 163 colleagues
Highest Nursing Degree

- Diploma: 57%
- Associates: 15%
- Baccalaureate: 5%
- Masters/Other: 23%

Distribution of Survey Scores

- RN Mean Score for Multi-Item Survey

Frequency Distribution of Survey Scores
Phase I results and limitations

- Expertise scale appears to be psychometrically sound.
  - Highly reliable and valid.
- Small purposive sample biased towards bachelor’s prepared nurses (80%) as compared to staff nurses nationally (31%).
- Sample was 97% white, compared to 86% of nurses nationally.

Phase II: Refinement and Psychometric Testing

- Purposes:
  - Refine the survey
  - Establish psychometric properties
  - Demonstrate generalizability
  - Develop subscales
- Sponsor: NINR - P30 Pilot Study
- Collaborate w/ ANA/NDNQI
Phase II: Refinement

Objectives:
1. Improve item set content.
2. Improve item readability and interpretability.
3. Improve response categories.

Expert Panel Review

Process:
1. Delete conceptually redundant items.
2. Split items with multiple features.
3. Simplify item phrasing by converting to an active voice.
Survey Refinement Results

- The revised CNES has 34 items after splitting or deleting items.
- All items were simplified and consistent verb use was implemented.

Sample Items: Revised

- Establish trust and good communication with patients and families.
- Devise and implement skin and wound care strategies that foster healing and comfort.
- Set priorities to effectively coordinate and meet multiple patient needs and requests.
Example of item refinement

Original:
“Listening to and clarifying the patient’s concerns, preferences, and distress in order to provide patient care guided by the patient's responses”

Revised:
“Provide care guided by the patient’s concerns and preferences”

Revised Response Categories

My level of ability for this nursing role or function is:

<table>
<thead>
<tr>
<th>Competent</th>
<th>Proficient</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Phase II: Psychometric Testing

- Survey nurses on all acute care nursing units in three hospitals

- Selection criteria:
  - Hospital participates in annual NDNQI web-based nurse survey
  - Educational and racial/ethnic diversity of nurses

Sample Selection

- 650 hospitals in the database in 2005
- 40 hospitals in the October 2005 nurse survey
- Identify the 10 hospitals with the most diverse nurse samples:
  - From 37% to 97% white
  - From 22% to 52% BSN
- Select the top four, just in case one drops out at the last minute
Nurse Survey Results

- 2,500 nurses in four hospitals
- 66% response rate

Hospitals:
- One mid size (200-299 beds)
- One large (400-499 beds)
- Two extra large (>= 500 beds)
- One non-teaching; one teaching; two academic medical centers

Nurse Characteristics

- 41 years old, on average
- 88% female
- 15 years experience in nursing
- 7 years experience on nursing unit
- 44% have national specialty certification
Nurse Sample Ethnicity

- White: 63%
- Black: 17%
- Asian: 4%
- Hispanic: 6%
- Other: 10%

Expertise Survey Scale Score

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expertise</td>
<td>3.26</td>
<td>1.13</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
Distribution of Scale Scores

Reliability

- Cronbach’s Alpha = .98 across all clinical and educational subgroups
Validity Indicators

- Descriptions reflecting different levels of skill and ability in nursing.
- How often are you selected to be a preceptor for another nurse?
- How often do nurses come to you for clinical judgment on a difficult clinical problem?
- Labels reflecting levels of expertise.

The way in which you practice..

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relies on standards of care and unit procedures</td>
<td>9</td>
</tr>
<tr>
<td>Increased clinical understanding</td>
<td>31</td>
</tr>
<tr>
<td>Perceives patient situation as whole</td>
<td>35</td>
</tr>
<tr>
<td>Recognizes unexpected clinical responses</td>
<td>22</td>
</tr>
</tbody>
</table>
### How often selected to be a preceptor...

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>16</td>
</tr>
<tr>
<td>Rarely</td>
<td>15</td>
</tr>
<tr>
<td>Occasionally</td>
<td>37</td>
</tr>
<tr>
<td>Frequently</td>
<td>31</td>
</tr>
</tbody>
</table>

### How often do nurses come to you for clinical judgment...

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>2</td>
</tr>
<tr>
<td>Rarely</td>
<td>6</td>
</tr>
<tr>
<td>Occasionally</td>
<td>37</td>
</tr>
<tr>
<td>Frequently</td>
<td>53</td>
</tr>
</tbody>
</table>
### Category that best describes your level of expertise?

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Beginner</td>
<td>4</td>
</tr>
<tr>
<td>Competent</td>
<td>15</td>
</tr>
<tr>
<td>Proficient</td>
<td>53</td>
</tr>
<tr>
<td>Expert</td>
<td>27</td>
</tr>
</tbody>
</table>

### Validity Evidence

- Statistically significant bivariate associations between all validity indicators and the expertise scale score.
- Positive correlation between nursing experience and expertise ($r = .15$)
Education and Expertise

<table>
<thead>
<tr>
<th>Highest degree</th>
<th>Mean Expertise Scale Score</th>
<th>Mean Years of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>3.34</td>
<td>20</td>
</tr>
<tr>
<td>Associate</td>
<td>3.20</td>
<td>13</td>
</tr>
<tr>
<td>B.S.</td>
<td>3.24</td>
<td>13</td>
</tr>
<tr>
<td>Master's</td>
<td>3.60</td>
<td>19</td>
</tr>
</tbody>
</table>

Exploratory factor analysis

Two factors emerge:
- Nurse’s relationship with patient and family
- Nurse’s clinical assessments and responses, and the nurse’s role in a team of providers.
Mean Factor Scores: All Nurses and Selected Clinical Subgroups

<table>
<thead>
<tr>
<th></th>
<th>Relation</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>3.23</td>
<td>3.29</td>
</tr>
<tr>
<td>Adult Med-Surg</td>
<td>2.86</td>
<td>2.95</td>
</tr>
<tr>
<td>Adult Medical</td>
<td>3.18</td>
<td>3.22</td>
</tr>
<tr>
<td>Adult Surgical</td>
<td>3.18</td>
<td>3.31</td>
</tr>
<tr>
<td>Adult Critical</td>
<td>3.18</td>
<td>3.44</td>
</tr>
</tbody>
</table>

Scatterplot of Factor Scores

NOTE: 5 obs had missing values. 311 obs hidden.
Conclusions

- The CNES is reliable and valid.
- The CNES measures two domains of expertise.

Implications for Practice, 1

- Nurse survey measures of clinical expertise hold promise for informing hospital managers and leadership about the effect of differential expertise on patient outcomes.
- The two domains represented in the CNES could assist managers to evaluate and cultivate their nurses’ expertise.
Implications for Practice, 2

The CNES could be incorporated into nurse surveys for research and benchmarking purposes to broaden our assessment and understanding of nurses’ influence on the quality of care.