Psychometric Evaluation of Advanced Practice Nursing Students Competencies Using Standardized Patients

Karen Macauley, DNP, APRN
Susan Bonnell, PhD, APRN
Susan Instone, DNSc, APRN

University of San Diego
Hahn School of Nursing and Health Sciences
Purpose

Proposal:
- Standardization of competency assessment tools for advanced practice nursing (APRN) students
- Comparison of agreement among faculty and standardized patients (SPs) when evaluating APRN students

Rationale:
- Standardized method for evaluation of APRN student performance (valid and reliable tool)
- Establish similar rigorous evaluation of psychometric properties of APRN student performance as demonstrated in medical students using SPs
Aims

- To establish scoring reliability for an assessment tool utilized for determining proficiency in masters’ level first semester APRN students.
- To determine correlation of SPs with faculty scoring.
- To consider feasibility in decreasing faculty hours and workload in the assessment process by creating a standardized, valid and reliable assessment tool.
- To improve student satisfaction in the assessment & evaluation process.
Background

- SPs used in evaluation of competencies for medical students & physician since 1995.
- Foundation for the U.S. Medical Licensing Exam Step II
- Reliability and validity established within medical education 88-92%
- Recent introduction of SPs into nursing curricula has not been accompanied by rigorous evaluation of their psychometric properties.
Standardized Patients History

- First use of SPs for assessment by Howard Burrows in neurology clerkship, USC
- 1968: Kretzschmar developed first gyn teaching associates at U. of Iowa
- 1975: Harden, Stevenson, Downie published first article on OSCE
- 1976: Stillman began use of SPs to teach interviewing, PE skills
- 1986: U. Mass, SIU use SPEs to test clinical performance medical students
SP History, cont’.

- **1991**: ECFMG piloted SPs to assess clinical skill of foreign medical grads
- **1993**: Medical Council of Canada first required national SPs as part of medical licensure exam
- **1995**: U.S. National Board of Medical Examiners endorsed use of SPs as part of USMLE Step II
- **2005**: All graduating Med students required to take this exam nationally (U.S.)
History of USD Program

- **2001-2004:** HRSA Nursing Education Grant to NP Curriculum
  - Add Problem-Based learning
  - Develop Web-enhanced FNP Program
  - Begin SP program
- **2000-2002:** New Nursing Learning Lab built; exam rooms with A/V equipment, one-way mirrors
- **2002-2004:** Used UCSD Med School SPs
- **2004:** Sent Faculty to SIU for training in running SP Program; Joined ASPE and attended conference, Began USD Program
- **2006:** Fully incorporated into NP curriculum
- **2008:** Begin integration into MEPN curriculum
- **2009:** Integrate into APRN curriculum
- **2009:** Begin Standardized Patient Research
Exam Room
Standardized Patients

“Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand.”

- Confucius, 450 BC
Standardized Patients

- Standardized patients are actors who are trained in actually case scenarios to provide a clinical experience in a clinical setting, face to face with a student provider.
How we use SPs

- Teaching, Formative & Educational uses - A teaching strategy
  - Small groups
  - Large groups
  - One on One

- Summative & Testing - An evaluation tool
  - High Stakes
  - Low Stakes
  - Competency-based education
Pros & Cons

Human Patient Simulators

Pros:
- Able to demonstrate abnormal heart, lung, bowel sounds

Cons:
- Lack Fidelity and Realism
- Difficult assessing interpersonal communication skills

Standardized Patients

Pros:
- Detailed portrayal of a patient with health problem
- Based on factual cases from practicing clinicians.
- Face to face assessment & communication.
- Practical hands-on theory application
- Authentic fidelity and human application of skills.

Cons:
- Difficulty portraying abnormal physiological signs
Purpose of study

➢ To evaluate a valid and reliable method for assessing the clinical competencies of APRN students (nurse practitioners and clinical nurse specialists) in the early stages of their academic program
Conceptual Framework: Complex Adaptive System

- Individual and complex elements interacting in dynamic, non-linear, & unpredictable patterns.
- Open systems with feedback loops which both enhance and & detract.
- Complexity
- Interdependent events requiring holistic methods of evaluation
- Utilization of computer analysis of multiple variables simultaneously
- Production of creative adaptations that will contribute to assessing student behavior and promote innovative and emergent behaviors to consider for advancing methods of instruction and learning.
Methodology

- A quantitative, descriptive, comparison between two groups
  - Pearsons $r$ with statistical significance of $p < 0.05$

- Convenience sample:
  - Faculty, student participants, & SP actors

- Sample size:
  - Phase 1: 5 faculty, 5 SPs
  - Phase 2: 5 faculty, 5 SPs, 34 students

- Variables:
  - Independent Variables:
    - Part 1: Videotaped physical examination
    - Part 2: APRN students performing assessment exam
  - Dependent Variable:
    - Part 1 and 2: Competency-based checklist guideline with item scores
Phase 1:

- Expert faculty consisting of clinical nurse practitioners and clinical nurse specialist faculty teaching the Physical Diagnosis and Health Assessment course developed a checklist guideline to score the standardized patient exam (to determine content validity)
- Part 1: Training standardized patients to evaluate student performance using the checklist (to ensure consistency among all SPs)
- Part 2: Faculty and standardized patient will observe the same videotaped SPE (to establish inter-rater reliability)
- Correlation of faculty/SP checklist score
- Checklist tool revision
Phase 2:

- SP examination was completed by APRN students over ½-hour period during regularly scheduled class period
- Students videotaped during their midterm and final assessment examinations.
- SP’s scored revised checklist after each student examination.
- Clinical faculty observed the videotape and scored each student utilizing the same revised checklist the SPs used.
Data Analysis

- Descriptive statistics
  - Phase 1: Correlation of Faculty and SP scores for the physical examination training video.
  - Phase 2: Correlation of faculty and SP scores for the student midterm and final examination
- Crosstabs analysis - Cronbach alpha to represent internal consistency
Results

Data analysis of faculty and SP scores on the revised performance checklists found significant agreement between 87.17% and 92.30% on history and physical examination items.

Differences in faculty-SP scores in the communication and organizational domains were found only in 2 of 20 items.
Conclusions

➢ Study results support the ability of SPs, as demonstrated in the medical literature with medical students, to accurately evaluate APRN student performance.
What we learned

- Faculty inter-rater reliability
- What skills students do well
- What skills need improvement
- Comparison: Faculty and SPs assess students
  - Those items agreed upon
  - Those items with conflicting outcomes
- Provision of minimal or baseline competencies for promotion within the program
Where we are going

- Agreement among faculty regarding assessment items significant for grading
- Clarification for performance of those items
- Improved training for standardized patients
- Provision of minimal or baseline competencies for promotion within the program
- Continued efforts to move toward the SP competency-based assessment model
Questions?
Karen Macauley  macauley@sandiego.edu
Susan Bonnell  sbonnell@sandiego.edu