

# Psychometric Evaluation of Advanced Practice Nursing Students Competencies Using Standardized Patients

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# 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 actual 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:

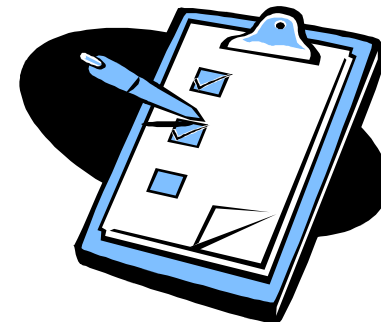
- Detailed portrayal of a patient with health problem
- Based on factual cases from practicing clinicians.
- Face to face assessment & communication.
- Practical hands-on theory application
- Authentic fidelity and human application of skills.

### 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?

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