Using Virtual Patient Simulation to Improve Clinical Reasoning Skills in Prelicensure Baccalaureate Nursing Students

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Introduction

Clinical reasoning

Literature gap

Definition

Benner et al., 2010; Benner, 2022; Foronda et al., 2020; Golden-Holder, 2018

Purpose

- The purpose of this study was to determine if virtual patient simulation impacts learners' clinical reasoning in prelicensure nursing health assessment courses.

Project Design

- Quantitative, quasi-experimental
- Pre-test – Post-test methodology
- Single group
- Digital Clinical Experience (DCE) using virtual patient simulation
- Variables
  - Clinical reasoning
  - Virtual patient simulation
- Ethical considerations

Kolb, 1984; Shadow Health®, 2022

Sample and Setting

Convenience sample

Health assessment course

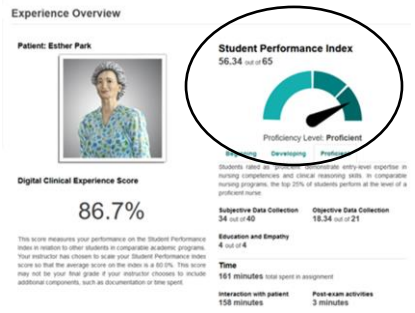
Inclusion criteria

Exclusion criteria

Power analysis

Instrumentation

- Student Performance Index (SPI) score
  - Specific to clinical reasoning
  - Cronbach's alpha .94
  - Analyzes
    - Subjective data collection
    - Objective data collection
    - Education and empathy



Jimenez et al., 2015

Intervention

Orientation to the DCE

Pre-test

Routine virtual patient simulation assignments

Post-test

Data Collection and Analysis

- Research proxy
- Simulation proxy
- Demographic data
- SPSS 27
- Two-tailed paired samples *t*-test
  - Pre- and Post-SPI scores
  - $\alpha \leq .05$

Study Participants

- 56 possible participants
- 40 students consented to have data analyzed
- 20 students completed both the pre- and post-tests
- *n* = 19

Descriptive Statistics – Sample (*n*=19)

Demographic	Number (Percentage)
Age (years) 18-24	16 (84.2)
Gender Female	18 (94.7)
Highest Education HS Diploma/GED	11 (57.9)
Current Employment Part-time	15 (78.9)
Comfort w/Tech Comfortable	13 (68.4)

Descriptive Statistics - Simulation

Variable	Mean (+/-SD)	Range
Pre-Test Time – minutes	51.47 (20.9)	18-95
Post-Test Time - minutes	51.58 (21.1)	19-106
Pre-Test SPI - converted to percent	50.73 (13.7)	33.1 – 85.1
Post-Test SPI - converted to percent	69.93 (15.9)	30.8 – 87.6

Major Findings

No significant difference in time

Increased clinical reasoning scores (p = < .001)

Limitations

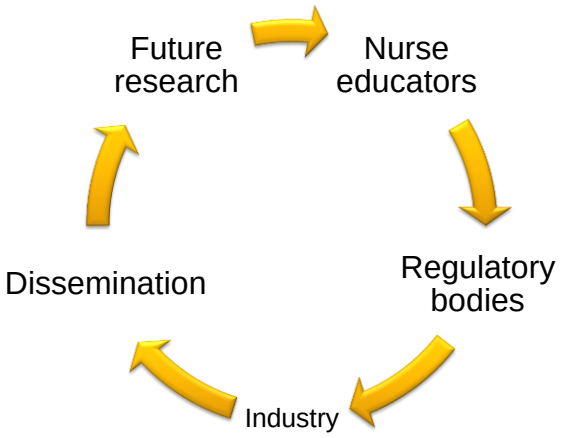
- Single site
- Lack of control group
- Small sample size
- Timing of post-test
- Technology

Bechtold et al., 2018; Creswell & Guetterman, 2019

Study Conclusion

- Virtual patient simulation had a positive impact on clinical reasoning and is an appropriate tool for nurse educators to use in baccalaureate nursing health assessment courses.

Implications and Recommendations



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Closing

- Clinical reasoning is foundational to safe patient care
- Qualitative, quasi-experimental study
- Pre/Post-test methodology
- Virtual patient simulation as a pedagogical tool
- Evidence to support the use of virtual patient simulation

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