EXPLORATION OF A RACIALLY DIVERSE SAMPLE OF NURSING STUDENTS’ SATISFACTION, SELF-EFFICACY, AND PERCEPTIONS OF SIMULATION USING RACIALLY DIVERSE MANIKINS: A PILOT STUDY

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International Nursing Association for Clinical Simulation & Learning is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation.
DISCLOSURES

Conflict of Interest

• Dr. Graham reports no conflict of interest.
• Dr. Foronda reports no conflict of interest.
• Julia Greenwalt (INACSL Conference Administrator & Nurse Planner) reports no conflict of interest
• Leann Horsley (INACSL Lead Nurse Planner) reports no conflict of interest

Successful Completion

• Attend 100% of session
• Complete online evaluation
LEARNING OUTCOMES

Upon completion of this educational activity, participants will be able to:

1. Describe the state of the science regarding diversity in simulation pedagogy.

2. Analyze if implicit bias exists in current simulation practices at your institution.

3. Incorporate practices and principles of diversity in current simulation practices.
Underrepresented racial minorities are sorely missing in academia (NLN, 2016)

Inclusive academic environments (NLN, 2016)

Barriers to clinical education practices for minority nursing students (Graham & Atz, 2015; Graham, Atz, Hudson, & Newman, 2016)

Simulation pedagogy
BACKGROUND

• Landmark NCSBN simulation study (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014).

• Landmark doll study (Clark & Clark, 1939; 1947)

• Racial diversity in simulation advertisements (Foronda, Baptiste, & Ockimey, 2016)

• Minority nursing students perceptions (Graham & Atz, 2015)

• Manikin race (Fuselier, Baldwin, & Townsend-Chambers, 2016).
In God we trust, all others bring data.

W. Edwards Deming
PURPOSE

- Little is known about minorities in simulation research.
- Little is known about diversity of methods used in simulation pedagogy.

- **The purpose of this study was to:**
  a) explore potential trends of differences in satisfaction, self-efficacy
  b) perceptions about the simulation experience
SAMPLE

• 32 pre-licensure, Bachelor of Science in Nursing (BSN) students attending Francis Marion University
  • 16 Black, 16 White
  • 2nd semester junior level and above
SIMULATION

• Sickle cell anemia (NLN, 2010)
• Four students per simulation group (Adamson, 2015; INACSL, 2013)
• Debriefing for Meaningful Learning (Dreifeurst, 2012; INACSL, 2013)
• Entire pre-briefing, simulation, and debriefing lasted one hour and five minutes
• Simulation facilitator certified in simulation and formally trained in debriefing (INACSL, 2013)
METHODS

• Mixed methods design
• Pilot study
• IRB approved
• Quantitative data were analyzed using SPSS v 23 (IBM Corp, Armonk, NY)
• Qualitative data were analyzed using NVivo 10 by two nurse researchers (simulation experts) independently.
SURVEYS

SELF-EFFICACY

• Pre and post Nursing Student Self-efficacy scale (Stump, Husman, & Brem, 2012)

• Likert-style questions (0-not confident to 4-completely confident)

SATISFACTION

• Post Satisfaction Survey (Franklin, Burns, & Lee, 2014)

• Likert-style questions (1-strongly disagree to 5-strongly agree)
<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>M = 22.6</td>
</tr>
<tr>
<td>20-25</td>
<td>26 (81.2)</td>
</tr>
<tr>
<td>26-30</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>31-35</td>
<td>2 (6.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>28 (87.5)</td>
</tr>
<tr>
<td>Male</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>Level in program</td>
<td>M = 1.75</td>
</tr>
<tr>
<td>Junior 2</td>
<td>17 (53.1)</td>
</tr>
<tr>
<td>Senior 1</td>
<td>6 (18.8)</td>
</tr>
<tr>
<td>Senior 2</td>
<td>9 (28.1)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>16 (50)</td>
</tr>
<tr>
<td>African American/Black</td>
<td>16 (50)</td>
</tr>
</tbody>
</table>
## QUANTITATIVE RESULTS

### PRE-POST SELF-EFFICACY

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Pre</th>
<th>Post</th>
<th>Change in SE from pre-post</th>
<th>t-statistic/Z-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overall (n=32)</strong></td>
<td>41.1 ±10.</td>
<td>55.8±9.1</td>
<td>14.8±8.2</td>
<td>-10.2*</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Black (n=16)</strong></td>
<td>39.4±9.3</td>
<td>55.5±9.6</td>
<td>16.0±9.4</td>
<td>Z= -.585**</td>
<td>.56</td>
</tr>
<tr>
<td><strong>White (n=16)</strong></td>
<td>42.7±10.8</td>
<td>56.3±8.9</td>
<td>13.6±6.9</td>
<td>Z= -.62**</td>
<td>.53</td>
</tr>
<tr>
<td><strong>Same race manikin (n=16)</strong></td>
<td>40.4±10.5</td>
<td>54.2±10.7</td>
<td>13.8±8.2</td>
<td>Z= -1.42**</td>
<td>.16</td>
</tr>
<tr>
<td><strong>Opposite race manikin (n=16)</strong></td>
<td>41.7±9.9</td>
<td>57.6±7.0</td>
<td>15.9±8.4</td>
<td>Z= -.69**</td>
<td>.49</td>
</tr>
<tr>
<td><strong>Black student / black manikin (n=8)</strong></td>
<td>41.5±9.9</td>
<td>54.1±12.3</td>
<td>12.1±7.5</td>
<td>Z= -1.42**</td>
<td>.16</td>
</tr>
<tr>
<td><strong>Black student / white manikin (n=8)</strong></td>
<td>36.9±8.6</td>
<td>56.9±6.3</td>
<td>19.9±10.</td>
<td>Z= -1.2</td>
<td>.21</td>
</tr>
<tr>
<td><strong>White student / white manikin (n=8)</strong></td>
<td>38.8±11.5</td>
<td>54.2±9.8</td>
<td>15.4±9.</td>
<td>Z= -.69**</td>
<td>.49</td>
</tr>
<tr>
<td><strong>White student / black manikin (n=8)</strong></td>
<td>46.6±9.1</td>
<td>58.4±8.</td>
<td>11.8±3.6</td>
<td>3.49***</td>
<td>.323</td>
</tr>
</tbody>
</table>
## QUANTITATIVE RESULTS

### POST SATISFACTION

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Mean ± SD / (Median)</th>
<th>t-statistic/ Z-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black (n=16)</td>
<td>23.9±1.5 (25.)</td>
<td>-</td>
<td>Z= -.49**</td>
</tr>
<tr>
<td>White (n=16)</td>
<td>22.4±5.1 (24.5)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Same race manikin (n=16)</td>
<td>22.3±5.1 (24.5)</td>
<td>-</td>
<td>Z= -.77**</td>
</tr>
<tr>
<td>Opposite race manikin (n=16)</td>
<td>24.1±1.3 (25.)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Black student / black manikin (n=8)</td>
<td>23.6±1.8 (24.5)</td>
<td>-</td>
<td>Z= -.63**</td>
</tr>
<tr>
<td>Black student / white manikin (n=8)</td>
<td>24.3±1.1 (25.)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>White student / white manikin (n=8)</td>
<td>20.9±7. (24.)</td>
<td>Z= -.51**</td>
<td>.61</td>
</tr>
<tr>
<td>White student / black manikin (n=8)</td>
<td>23.9±1.6 (24.5)</td>
<td>.86***</td>
<td>.835</td>
</tr>
</tbody>
</table>

*from paired t-test; ** from Wilcoxon rank sum test; *** from Kruskal-Wallis test
QUALITATIVE

- Single race
  - 45 min
  - Eight students/group (Morgan, 1996)

- Charmaz constructivist grounded theory methodology (Charmaz, 2006)

- Line by line coding, member checking (Charmaz, 2006)

- Professional transcription
QUALITATIVE FINDINGS

Participant Demographics

- Race
- Level in program/collaborative

Participant Outcomes

- Satisfaction
- Attitudes
- Behavior

Simulation experience

- Learner centered/dynamic interaction between facilitator and participant
- Environment of trust
PARTICIPANT DEMOGRAPHICS

• “Student from multiple levels in program a facilitator”,

• “Perceived lessened racial divide due to multiple level groups”,

• “Minority facilitator “Helpful and offered a sense of comfort”,

• “I feel the faculty don’t think I know what I’m doing and it makes me think they’re going to single me out”, and

• “Sense of comfort to the black manikin, I felt represented”.

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PARTICIPANT OUTCOMES

• Multiple level groups, and

• Attitude change and increased comfort level regarding a black patient, “I never had a black patient before”
SIMULATION EXPERIENCE

- Peer-to-peer interaction during debriefing,
- Simulation to interrupt process of forgetting, and
- Trust
DISCUSSION

The study results suggest the need for future research in this area.

Implicit bias.

perceived stereotype threat (Steele, 2011)

Simulation challenges for all students, particularly minority nursing students.
DISCUSSION

Future research: Is race a participant demographic characteristic that influences nursing student outcomes?

If outcomes signal race as a variable, it would be plausible that governing bodies would amend simulation policy and the existing simulation theory accordingly.
LIMITATIONS

• Single site
• Small sample size
• Time interval of data collection between simulation experience and focus groups
• Single researcher involved in data collection
CONCLUSION

The pilot data may serve to guide nurse educators into strategically designing simulation studies that will include minority students.

In planning simulations, nurse educators should consider methodologies used and ensure they are inclusive for all learners.
REFERENCES


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Nvivo (2012). Nvivo qualitative data analysis software; QSR International.


CONTACTS

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