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Real World Or Out Of This World? An Evaluation Of The Effectiveness Of Simulation In Teaching Blood Pressure Measurement

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Simulation research overview

Collaborative pilot study involving
- Department of Nursing and Health Studies, University of Huddersfield, UK
- School of Nursing, UCOL, NZ

Funding from
- Yorkshire & Humber Strategic Health Authority, UK
- Ako Aotearoa, NZ
Simulation

- Widely used teaching and learning strategy for a variety of clinical skills

- About practising the skill, the doing

- Reviewing the effectiveness of our teaching strategies
Research question

How effective is simulation in preparing student nurses to competently measure blood pressure in the real-world environment?
Research aims

- Compare and contrast teaching and learning strategies used by the two Departments/Schools in the teaching of blood pressure measurement [BPM];

- Identify students’ experiences of teaching and learning in relation to BPM prior to, and then immediately after their first clinical placement;
Research aims

- Identify clinical mentors and nurse teachers’ perceptions of whether students on their first clinical placement were able to competently measure blood pressure,

- To explore the implications of the research findings for other clinical simulation teaching.
Student questionnaires

- Relevant ethics and institutional approvals obtained
- Independent people distributed surveys
### Response rates, student questionnaires

<table>
<thead>
<tr>
<th></th>
<th>Questionnaires distributed</th>
<th>Completed questionnaires returned</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire #1</td>
<td>55</td>
<td>36</td>
<td>65%</td>
</tr>
<tr>
<td>Questionnaire #2</td>
<td>55</td>
<td>51</td>
<td>92%</td>
</tr>
<tr>
<td><strong>UCOL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire #1</td>
<td>60</td>
<td>52</td>
<td>86%</td>
</tr>
<tr>
<td>Questionnaire #2</td>
<td>75</td>
<td>65</td>
<td>86%</td>
</tr>
</tbody>
</table>
Twice as many of the Huddersfield students (56%) had worked in health care settings prior to starting their nursing programme as UCOL students (29%).
Previous experience of taking blood pressure

<table>
<thead>
<tr>
<th></th>
<th>Huddersfield</th>
<th>UCOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>62%</td>
<td></td>
<td>11%</td>
</tr>
</tbody>
</table>


Understanding of theory

Slightly higher levels of confidence at Huddersfield but majority of students with poor level of understanding before simulation sessions
Understanding before simulation

Poor level of understanding of *theory* requirements
62%

Poor level of understanding of *practical* requirements
51%

Combined responses
Understanding of theory

HUDDERSFIELD

UCOL
Understanding of practical requirements

Huddersfield

- Poor: 25%
- Good: 11%
- Competent: 11%
- Confident and competent: 53%

UCOL

- Poor: 40%
- Good: 10%
- Competent: 10%
- Confident and competent: 50%
Confidence Levels

Post Simulation
Confidence levels after simulation

Despite the fact that students at Huddersfield rated their understanding and confidence more highly than the UCOL students prior to the simulation, after the simulation they had lower confidence levels compared with UCOL students.
<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Huddersfield</th>
<th>UCOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>No confidence</td>
<td>6%</td>
<td>0</td>
</tr>
<tr>
<td>Some confidence</td>
<td>64%</td>
<td>27%</td>
</tr>
<tr>
<td>Quietly confident</td>
<td>0</td>
<td>13%</td>
</tr>
<tr>
<td>I am confident</td>
<td>14%</td>
<td>50%</td>
</tr>
<tr>
<td>Confident and competent</td>
<td>8%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Lecturer confirmation

- Majority of students had a manual BP measurement confirmed by a lecturer using a teaching stethoscope
- This gave most students more confidence
Post Clinical Practice
Experience of undertaking manual BP measurement in clinical placement

Huddersfield

UCOL
Experience of undertaking electronic BP measurement in clinical placement

Huddersfield

UCOL
Registered nurse supervision whilst taking & recording blood pressure on first clinical placement

- Huddersfield
  - Never: 41%
  - Once or twice: 1%
  - Sometimes: 16%
  - Every occasion: 40%

- UCOL
  - 100%
My mentor made me question what I did

Huddersfield

UCOL
Level of Understanding (practical) – UH

Prior to simulation

Post simulation

My knowledge and understanding has increased
Level of Understanding (practical) – UCOL

Prior to simulation

- Poor level of understanding: 69%
- Good level of understanding: 27%
- Confident in my understanding: 2%

Post simulation

- My knowledge and understanding has increased:
  - SD: 50%
  - D: 18%
  - A: 18%
  - SA: 2%
Level of Understanding – UH

Prior to simulation

Post simulation and clinical placement

A good understanding of the relationship between theory and practice

Strongly disagree □ Disagree □ Agree □ Strongly agree

Poor □ Good □ Competent □ Confident and competent
Level of Understanding - UCOL

Prior to simulation

- Poor level of understanding: 10%
- Good level of understanding: 40%
- Competent in application: 50%
- Confident and competent: 10%

Post simulation and clinical placement

- A good understanding of the relationship between theory & practice
- Strongly disagree: 5%
- Disagree: 15%
- Agree: 85%
- Strongly agree: 5%
Summary

- This pilot study has confirmed that the teaching and learning strategies, including simulation, used to educate Year One nursing skills in BPM are, in the mainly, generally effective.

- Needs consideration:
  - What are the appropriate expectations of first year nursing students?
  - To what degree can confidence/competence be achievable?
‘Learning to perform the blood pressure on a patient was fascinating and an empowering experience in the early steps of being a student nurse. I can’t wait to use my new skill in the practicum’.

(UCOL student)
Thank you for listening

Any Questions?