The Effectiveness of Simulation-based Zoom Learning on Enhancing Clinical Decision Making for Nursing Students

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Introduction

- Given the current outbreak of the novel coronavirus (COVID-19), the Hospital Authority and universities have stepped up social distancing to combat the outbreak. Clinical practicum and assessment for nursing students has been suspended since January 2020.
- Final year nursing students are required to achieve clinical decision making for graduation and for the licensure of registered nurse in Hong Kong. The conventional use of Zoom education poses challenges and difficulties in clinical nurse development and student assessment (Kenny, 2002; Smith et al., 2009). With the successful experience in simulation-based teaching in the Nethersole School of Nursing, we propose a project to enhance clinical decision making by adopting simulation-based Zoom learning (SBZL) in online platform for students studying the Bachelor of Nursing (BNurs) programme.
- Simulation-based teaching is a teaching strategy that applies simulation technique to replace and amplify real experiences with guided ones in a fully interactive fashion (Lateef, 2010). It has been adopted in education of various health professionals to improve students’ knowledge, skills and behaviour, and patient-related outcomes (Cook et al., 2011). In undergraduate nursing education, previous literature demonstrated its effectiveness in knowledge acquisition and psychomotor skills development, and improvement in students’ self-efficacy, confidence and critical thinking (Cant & Cooper, 2017). After simulation training, students started to have the feeling of being a nurse and strive for maturing in the profession (Lestander et al., 2016). More importantly, patient safety can be ensured by simulation training in a controlled environment (Hughes, 2008).

Objectives

- To provide support to teachers for the development of coursework and implementation of SBZL
- To enhance students’ knowledge on clinical decision making, perception of capabilities and teaching and learning environment via SBZL
- To disseminate evaluation result and advocate for innovative and good practice in university nursing education

Methods

- Participants: All year 5 BNurs students were invited to join the SBZL
- Study design: Pre-test post-test design and a historical control
- SBZL development and implementation:
  - Briefing phase: Students were provided with information related to the patient and tasks for Zoom discussion.
  - Participation phase: Students provided their plan of care (clinical decision making) through Zoom to the facilitator (laboratory staff) who operates the simulators to provide simulated feedbacks to the students.
  - Debriefing phase: Instructor explained the scenario and reflected the experience with students.

A total of 38 case scenarios of total client care were developed and simulated using the six simulators with manikins in the simulation learning unit situated at the Clinical Learning and Simulation Center of the Nethersole School of Nursing.

Results and Discussion

<table>
<thead>
<tr>
<th>Capability</th>
<th>Pre</th>
<th>Post</th>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative thinking</td>
<td>4.06 ± 0.47</td>
<td>4.06 ± 0.45</td>
<td>0.12</td>
<td>0.827</td>
</tr>
<tr>
<td>Self-Managed learning</td>
<td>5.00 ± 0.35</td>
<td>5.05 ± 0.35</td>
<td>0.48</td>
<td>0.628</td>
</tr>
<tr>
<td>Problem solving</td>
<td>5.00 ± 0.35</td>
<td>5.05 ± 0.35</td>
<td>0.48</td>
<td>0.628</td>
</tr>
<tr>
<td>Communication skills and groupwork</td>
<td>3.00 ± 0.44</td>
<td>3.05 ± 0.44</td>
<td>0.30</td>
<td>0.764</td>
</tr>
<tr>
<td>Computer literacy</td>
<td>2.00 ± 0.47</td>
<td>2.05 ± 0.48</td>
<td>0.30</td>
<td>0.764</td>
</tr>
<tr>
<td>Computer literacy</td>
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<td>0.764</td>
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Overall, SBZL increased in students’ knowledge and perception of capabilities and teaching and learning environment compared to controls.

- A total of 102 students completed the intervention, with 92 of them completed both pre- and post-intervention questionnaires. All participants who completed pre- and post-intervention questionnaires (n = 110) were included in the analysis.

- The historical control involved all students in the cohort of 2018-2019.

- The results demonstrated the improvement in students’ knowledge on clinical decision making, perception of capabilities and teaching and learning environment after SBZL.

Acknowledgement

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