

การใช้สถานการณ์จำลองเหมือนจริงเพื่อพัฒนาการคิดเชิงวิพากษ์ในนักศึกษาพยาบาล
The Use of Human Patient Simulation (HPS) as a Teaching Tool to Increase the Development of Critical Thinking among Nursing Students

ณัฐวุฒิ สุริยะ^{1*}, ผดุงศิษฐ์ ชำนาญบริรักษ์¹

Natthawut Suriya^{1*}, Phadoongsit Chumnanborirak¹

วิทยาลัยพยาบาลศรีมหาสารคาม คณะพยาบาลศาสตร์ สถาบันพระบรมราชชนก กระทรวงสาธารณสุข^{1*}
Srimahasarakham Nursing College, Faculty of Nursing Praboromarajchanok Institute Ministry of Public Health^{1*}

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บทคัดย่อ

การใช้สถานการณ์จำลองเหมือนจริง (Human Patient Simulation: HPS) สามารถเพิ่มทักษะการคิดเชิงวิพากษ์ในนักศึกษาพยาบาล ซึ่งทักษะนี้เป็นสิ่งที่จำเป็นส่งเสริมให้ผู้เรียนสามารถเชื่อมโยงความคิดระหว่างความรู้ภาคทฤษฎีกับการปฏิบัติที่เสมือนอยู่ในสถานการณ์จริง และสามารถที่จะให้การพยาบาลอย่างมีประสิทธิภาพและประสิทธิผล HPS ได้ถูกนำมาใช้ในการจัดการเรียนการสอน สามารถช่วยให้ผู้เรียนมีความมั่นใจและมีทักษะในการฝึกปฏิบัติการพยาบาลในสถานการณ์จริงและสามารถที่จะจัดการกับปัญหาที่เผชิญหน้าได้อย่างถูกต้อง ผู้เรียนสามารถฝึกประสบการณ์ในการดูแลผู้ป่วยโดยใช้สถานการณ์จำลองเหมือนจริงจากกรณีศึกษาผู้ป่วยที่หลากหลาย ซึ่งการเรียนรู้จะช่วยให้ผู้เรียนให้ความสำคัญในการให้การพยาบาลผู้ป่วย และสามารถเพิ่มความมั่นใจในการดูแล การเรียนรู้ด้วยวิธีนี้มีประโยชน์อย่างยิ่งสำหรับนักศึกษาพยาบาล เนื่องจากทำให้นักศึกษาเกิดการพัฒนาทักษะในการตัดสินใจด้านการคิดเชิงวิพากษ์ทางคลินิกต่อไป

คำสำคัญ: การคิดเชิงวิพากษ์, นักศึกษาพยาบาล, การใช้สถานการณ์จำลองเหมือนจริง

*ผู้ให้การติดต่อ (Corresponding email: natthawut@smnc.ac.th เบอร์โทรศัพท์ 063-1725460)



Abstract

This academic article aims to explore the existing evidence on the barriers and enablers of using human patient simulation (HPS) in undergraduate nursing education, so to increase critical thinking capacities among nursing students. Critical thinking competency is essential for providing effective and efficient care on a day-to-day basis. HPS could be integrated into the curriculum and not used as a stand-alone intervention. HPS is the supplementary clinical instruction that allows an opportunity for nursing students to care for patients with a wide variety of symptoms through highly structured, problem-centered teaching scenarios. It is also beneficial for nursing students that could be better to focus on patient care without harm to patients resulting in enhancing student confidence. In conclusion, the HPS is a meaningful method to encourage critical thinking skills in the clinical practice of nursing students.

Keywords: Critical Thinking, Human Patient Simulation, Nursing Students

Introduction

Human Patient Simulation (HPS) is one of the strategies in teaching and learning that has been used to develop critical skills in the nursing school (Aebersold, 2016). A well-designed simulation in curriculum has ability to draw upon multiple intelligences and is learner-centered whereas traditional education is relied on heavily on linguistic intelligence and rote memorization. The HPS has ability to formulate realistic case scenarios which are appropriate to meet the instructors' educational goals. The simulation could create a good learning environment that leads to enhance knowledge, skills, safety, and confidence. Many studies were reported that using HPS is beneficial for nursing students to develop clinical judgement skills for nursing practice. Likewise, a systemic review explores the effectiveness of HPS in teaching clinical reasoning skills in undergraduate nursing students. The results showed that nursing students were improved acquisition and critical thinking (Palombo, 2018). HPS could enhance student's satisfaction with the learning outcomes. In addition, Powell-Laney, Keen & Hall (2012) pointed out that HPS is the supplementary clinical instruction that allows an opportunity for nursing students to care for patients with a wide variety of symptoms through highly structured, problem-centered teaching scenarios. It is beneficial for nursing students because HPS could be better learning method to focus on patient care without harm to patient resulting in enhancing student confidence (Bryiewicz & Amod, 2019). Therefore, the HPS is meaningful method to encourage critical thinking skills in clinical practice of nursing students.

In Thailand, several nursing schools have been adopted the HPS as a teaching as learning tool in nursing curriculum to ensure that nursing students will be enhanced critical thinking. This is consistent with the core competency of register nurse which is published by Nursing and Midwife Council in Thailand. The second aspect highlighted that nurses should have the potential to use critical thinking in order to care for patient (Aebersold, 2016). Therefore, it is clear that critical thinking is an important issue that the policy in the country attempts to adopt in nursing schools in order to promote nursing students to think critically within the learning process.

Using HPS in nursing curricular is based on adult learning theory which has positive influence on self-directed learning because adult learners have to demonstrate self-responsibility in learning

process as well as the situation can affect the learners as active participant in the learning process (Bahri, 2021). Regarding to andragogy theory, Lewis & Bryan (2021) stated that adult learners had independent self-concept which can direct their own learning. The self-directed learning is essential component in learning process to act as a vehicle for nursing students to develop independent learning skills and a commitment to life-long learning (Gantt, Overton, Avery, Swanson, & Elhammoumi 2018). Students have the opportunity to exercise clinical decision making, even make mistakes, and then benefit from immediate feedback from faculty in a safe environment. In the actual clinical setting students cannot be permitted this much autonomy as human life is at stake (Al-Ghareeb & Cooper, 2016). HPS offers a unique opportunity for student to manage complex real-life emergencies; promotes reflection by allowing student to reflect or review their roles, decisions and skills; allows student midwives to learn from their own experiences and encourages student midwives to try out what they learnt in a real-life situation (Shin, Park & Kim, 2015).

It is notable that facilitators or educators are the key component to foster the process of the HPS to reach the learning outcomes. Understanding the facilitators to incorporating, HPS will enhance high technology approaches in curricula and produce positive educational outcomes (Schantz, Archer & Long, 2018). In patient simulation, the learners may have a relevant experience which can be used to promote equality and diversity of them. The role of facilitator is to assess the knowledge, experience and understanding of each learner in order to build upon their current ability. The facilitator should be aware of the unique personal knowledge of the learners and be ready to reinforce or discourage behaviour as appropriate. The responsibility of learners is to remember a similar situation and think of what the strategies how to handle it effectively. This process helps the facilitator to prepare and utilise their abilities to engage within the learning process.

It is related to the constructivist approach which underpinning the situation that the learners can bring their own experience and set to the situation. In addition, the learners study in a small group during the situation which had an opportunity to create social interaction with other including teachers and learners. This can form the basis of social constructivism theory. Conversely, behaviourist learning has a positive and more effective in the development of psychomotor skills and factual knowledge (Humphrey, 2013). Moreover, the orientation of the situation before participating in the situation is needed to meet the success of the situation. Clearly, the relationship between educators and learners is also significant in learning process. Humphrey (2013) pointed out that the educator behaviour could affect students' behaviour which in turn affect to the student achievement. Motivation in the learners is important. The educator should support the learners during learning process as an active learner. This is because it can enhance motivation through practice. In addition, the educator should provide and support simulation learning environment that allows the learners rooted in a familiar environment that could enhance the learners' ability gaining knowledge. Implementation of mastery learning can be logistically challenging as it requires flexibility in both educator time and simulation space and equipment. Multiple scenario simulations are effective in improving BN students' confidence and competence related to critical care practice with an enjoyable experience for students.

Utilizing Human Patient Simulators (HPS) in Nursing Education

HPS is ‘a tool to teach students about complex clinical situations using lifelike examples to increase critical thinking in nursing field. HPS is an effective method to develop critical thinking in nursing students. It is challenging for educator to student performance. Traditionally, the evaluation on student performance is likely done by educator using a pre-determined- determinate. The learners should be reflected on their performances as well as their progress in mastering skills or achieving their learning objectives (Burgener, 2017).

Assessment the developing critical thinking in nursing student is essential process. The use of HPS in creating the learning instruction, it could help the learners in increasing their self-confidence and nursing skills, the learners also can manage and deal with the problems facing correctly (Dieckmann, Patterson, Lahlou, Mesman, Nyström, & Krage, 2018). Furthermore, nursing students have opportunities to practice nursing care by using HPS from various scenarios. Regarding learning from HPS, it helps the nursing students focus on the nursing care. This is because HPS can help nursing students to develop their decision-making that relates to the critical thinking at the clinic (Eyikara & Baykar, 2017).

Feedback should be focused on both positive and negative because the learners need to know and make sense of the correct experience and what areas for improvement. Peer review is needed to provide additional assessment in the HPS. It helps the learner to review and critique their own and other student’s actions and behaviours. This peer review also has positive influence on reflection based upon their experience and they can integrate the new cognitive learning into the situation. If learners involved in evaluation process, it would be positive impact on diverse educators and data gathering method. Videotaping is necessary in complex simulation to record for debriefing purposes (Eyikara & Baykar, 2017). From the writer’s experience, nursing students would be provided realistic case scenarios what would allow them to make mistake and then reinforced them to focus on problem-solving. In addition HPS has a potential to create the sense of effectiveness, in relation to enabling the learners to face consequence, empathy, critical thinking decision- making and offer students a realistic representation of an actual event.

Both peer and self-evaluation are necessary to reinforce nursing students to focus on their learning their objective in clinical setting. They can also identify their own weakness and strength in performance as they compared with other students. In addition, the role of educator is to create a supportive and trusting environment in order to facilitate and support the process of evaluations leading to eliminate bias of peer evaluation (Kelly, Berragan, Husebø, & Orr, 2016). For example, educator should create specific guidelines and information with regard to the benefit of peer education and then educate the learners how to observe, make judgement and provide balance feedback. Therefore, it would be competencies of evaluation when include teacher, self and peer evaluation as a part of formative assessment to evaluate clinical competent. It is important to recognise that using several strategies to evaluate student performances in the HPS in order to maximise the reliability and validity of student peer evaluation.

It is clearly evident that HPS is an effective educational tool to facilitate learning in nursing student in order to enhance critical thinking, improve patient outcome and safety. There are enablers which may increase the use of such technology, including training through simulation workshops,

conferences, observation, hands-on practice, and mentor feedback. Although the HPS is an effective method in teaching and learning for nurse education programmes. It is necessary for the faculty to consider individuals, their experiences and their environments in order to achieve these improvements. In addition, reflection on nursing student is essential to the simulation process because it allows an opportunity to view on their performance as well as discussing it with the educator.

Barriers to use of simulation-based education

Barriers to simulation relate specifically to the complex technologies inherent in high-fidelity HPS approaches. Strategic approaches that support up-skilling and provide dedicated technological support may overcome these barriers (Al-Ghareeb & Cooper, 2016). The adoption of technology into teaching is complex and involves considerable time commitment, competence development and past experience. Further, the integration of sophisticated high-fidelity HPS into nursing curricula can be daunting for both faculty and programmes due to the steep learning curve, complex operational requirements and high-costs. There are some difficulties with effective assessment in the clinical practice. Traditional assessment was relied on direct observation and personal judgement which could create biased and subjective. Peer review seems to lack of objectivity, for example, the learner may overestimate on their mark, in particular, when they compete with encounter student. Peer assessment is correlation to self-evaluation scores and it is significantly higher than educator score. The possible explanations are that they are hesitant to provide a negative evaluation to others. These are because associated with friendship bonds, perception of criticism as socially uncomfortable, fear of harming their peer's grade and concern about disrupting collegiality.

The importance of Critical thinking in Nursing Education

It is acknowledged that nurses are important professionals to take care of patients. The use of critical thinking had a pivotal role in nursing situation in day-to-day responsibilities which are essential for providing effective and efficient care. Critical thinking is 'a dimension of nursing intelligence that is necessary for using in nursing care'. It is ability to integrate knowledge from all disciplines into the critical situation and can deal with the problems accurately. It is significant to early introduce and instruct the concept of critical thinking in student nurses which can adopt through practices and experiences. In addition, the nurse educator is also important factor that influences directly on nursing education by making the opportunity for nursing students to develop their skills. However, there are some factors that may affect successful situation. It is important to recognise that a lack of time and training in the simulation is difficult to integrate the simulation into learning method. Therefore, the role of educator is to facilitate nursing student in learning process. The educators should focus more on the process of learning in practice and less in the content being taught. Students are able to utilize the HPS lab to become comfortable with physical exam skills, procedural skills and communication skills before attempting them in a true clinical environment (Schantz, Archer & Long, 2018).

Conclusion

It would not be correct to rely on HPS in nursing education program. Other teaching methods are also important to combine in order to facilitate clinical skills and promote critical thinking. More evidence-based research is desperately needed to ascertain reliable approaches to promote critical thinking in nursing students. Therefore, although nursing program has several teaching methods to increase critical thinking, it is needed to continue in order to improve in this area. Contemporary teaching and learning approaches are likely to inadequate facilitating, resulting in less the development of critical skills. Therefore, it is challenging for educator to find out insufficient clinical experiences to act as the catalyst that enables nursing students for such practice demands.

References

- Aebersold, M. (2016). The History of Simulation and Its Impact on the Future. *AACN Advanced Critical Care*, 27(1), 56-61.
- Al-Ghareeb, A. Z., & Cooper, S. J. (2016). Barriers and Enablers to the Use of High-Fidelity Patient Simulation Manikins in nurse Education: an Integrative Review. *Nurse Education Today*, 36, 281-286.
- Bahri. (2021). *The Current Use of Human Patient Simulation Manikins in Saudi Arabian Nursing Schools: A Sequential Exploratory Study*. ProQuest Dissertations Publishing.
- Brysiewicz, & Amod, H. B. (2019). Promoting Experiential Learning Through the Use of High-Fidelity Human Patient Simulators in Midwifery: a Qualitative Study. *Curationis (Pretoria)*, 42(1), 1-7.
- Burgener, A. M. (2017). Enhancing Communication to Improve Patient Safety and to Increase Patient Satisfaction. *The Health Care Manager*, 36(3), 238-243.
- Dieckmann, P., Patterson, M., Lahlou, S., Mesman, J., Nyström, P., & Krage, R. (2018). Variation and Adaptation: Learning from Success in Patient Safety-Oriented Simulation Training. *Advances in Simulation*, 2(1), 1-14.
- Eyikara, E., & Baykara, Z. G. (2017). The Importance of Simulation in Nursing Education. *World Journal on Educational Technology: Current Issues*, 9(1), 2-7.
- Gantt, Overton, S. H., Avery, J., Swanson, M. & Elhammoumi, C. V. (2018). Comparison of Debriefing Methods and Learning Outcomes in Human Patient Simulation. *Clinical Simulation in Nursing*, 17, 7–13. <https://doi.org/10.1016/j.ecns.2017.11.012>.
- Humphreys, M. (2013) Developing an Educational Framework for the Teaching of Simulation Within Nurse education. *Open Journal of Nursing*, 3, 363-371. doi: 10.4236/ojn.2013.34049.
- Lewis, N., & Bryan, V. (2021). Andragogy and Teaching Techniques to Enhance Adult Learners' Experience. *Journal of Nursing Education and Practice*, 11(11), 31-40.
- M. A., Berragan, E., Husebø, S. E., & Orr, F. (2016). Simulation in Nursing Education- International Perspectives and Contemporary Scope of Practice. *Journal of Nursing Scholarship*, 48(3), 312-321.
- Powell-Laney, S., Keen, C. & Hall, K. (2012). The Use of Human Patient Simulators to Enhance Clinical Decision-Making of Nursing Students. *Education for Health*, 25(1), 11-15.

- Schrant, B. L., Archer, L. L., & Long, R. (2018). Human Patient Simulation as a Teaching Tool. *Missouri Medicine, 115*(1), 71-74.
- Shin, S., Park, J. H., & Kim, J. H. (2015). Effectiveness of Patient Simulation in Nursing Education: Meta-Analysis. *Nurse Education Today, 35*(1), 176-182.