A PILOT STUDY ON THE USE OF SCENARIO-BASED SIMULATION AS A PEDAGOGICAL TOOL IN MENTAL HEALTH EDUCATION FOR TERTIARY HEALTHCARE STUDENTS

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Aim: This pilot study aimed to explore the preliminary impact of using scenario-based simulation as a pedagogical tool to enhance mental health literacy, satisfaction and self-confidence among tertiary healthcare students. Methods: This pilot study utilized a cross-sectional design with a purposive sample of 20 tertiary healthcare students enrolled in a Mental Health Nursing module. Data were collected using a questionnaire comprising two instruments: the Mental Health Literacy (MHL) scale and the Student Satisfaction and Self-Confidence in Learning (SSCL) Scale. The collected data were analyzed using SPSS (Version 29.0). Results: The findings revealed that students' mental health literacy was low (M=109.0, SD=8.0). Conversely, high levels of student satisfaction (M=21.1, SD=4.5) and self-confidence (M=32.0, SD=6.3) with the scenario-based simulation learning activity were observed. Furthermore, a positive correlation was identified between student satisfaction and self-confidence in learning (r=0.83, p<0.001). Conclusion: The present study offers preliminary evidence that scenario-based simulation serves as an effective pedagogical tool for fostering both satisfaction and self-confidence within tertiary mental health education. Nevertheless, the result of low mental health literacy among students indicates that extended scenario-based simulation activities should be considered. All these findings advocate for the broader integration of simulation into the health sciences curriculum.

Keywords: *scenario-based simulation, pedagogical tool, mental health education, tertiary healthcare student*

Introduction

Traditional pedagogical approaches in mental health education are increasingly recognized for their limitations. Historically, curricula have emphasized theoretical instruction and didactic learning strategies, prioritizing knowledge acquisition over the development of essential practical skills (Chen et al., 2023). This discrepancy between classroom learning and clinical application has resulted in a well-documented theory-practice gap (El Hussein and Osuji, 2016; Greenway et al., 2019; Scully, 2011). Such conventional methods are often criticized for their effectiveness in cultivating the critical thinking and psychomotor skills essential for effective patient care (Li et al., 2025; Niu et al., 2023).

In response to these challenges, scenario-based simulation has emerged as a transformative alternative (Mulyadi, et al., 2021; Shin et al., 2015). This experiential approach offers a solution by mirroring the complexities of mental health practice in a controlled environment. Research consistently demonstrated that simulation-based training increased satisfaction and self-confidence (Alexander et al., 2023; Hall, 2017; Jeffries and Rizzolo, 2006; Schlairet and Fenster, 2012). Specifically, within mental health, studies confirmed that simulations provided a secure setting for students to practice and amplify real experiences with guided experiences without risk to actual patients (Alexander et al., 2023; Hall, 2017). Furthermore, students in simulation cohorts showed significant improvements in mental health literacy, as reported in studies by Liu (2021) and Murphy et al. (2023), demonstrating the importance of incorporating simulation exercises into nursing pedagogy (Al-Qerem et al., 2025).

This pilot study aimed to explore the preliminary impact of using scenario-based simulation as a pedagogical tool to enhance mental health literacy, satisfaction and self-confidence among tertiary healthcare students. Accordingly, this study sought to answer the following research question: How does participation in a scenario-based simulation activity influence the mental health literacy, satisfaction and self-confidence of tertiary healthcare students?

Methodology

Research Design and Sampling: This pilot study employed a cross-sectional design using purposive sampling. The entire cohort of first-year higher diploma healthcare students enrolled in the Mental Health Nursing module at the Institute of Vocational Education (Kwai Chung) was invited to participate. From this cohort, a final sample of 20 students voluntarily consented to complete a survey. No exclusion criteria were applied for participation.

Assessment Instruments: The data collection instrument was a three-part survey. The first section collected demographic data. The second section comprised the Mental Health Literacy Scale (MHLS; O'Connor and Casey, 2015), a 35-item instrument designed to evaluate multiple dimensions of MHL, including disorder recognition, risk factors and causes knowledge, self-treatment knowledge, help-seeking knowledge, and attitudes. Its response format included: 13 questions on a 4-point Likert scale (1=very unlikely to 4=very likely), with items 10 and 15 being reverse-scored; 2 questions on a 4-point Likert scale (1=very unhelpful to 4=very helpful), with item 12 being reverse-scored; 13 questions on a 5-point Likert scale (1=strongly disagree to 5=strongly agree), with items 20 to 28 being reverse-scored; and 7 questions on a 5-point Likert scale (1=definitely unwilling to 5=definitely willing). This scale demonstrated good internal consistency with a Cronbach's alpha of 0.87. The third section was the Student Satisfaction and Self-Confidence in Learning (SSCL) questionnaire (Jeffries, 2007; National League for Nursing, 2005). This 13-item instrument measures student satisfaction (5 questions) and self-confidence (8 questions) using a 5-point Likert scale (1=strongly disagree to 5=strongly agree). This instrument reported a high level of internal consistency, with a Cronbach's alpha of 0.90 for both the original version. Higher scores are associated with better performance on both scales.

Data Collection: Data were collected between July 3 and July 15, 2025, during the third semester of the 2024/2025 academic year. Prior to the study, prospective participants were briefed on its objectives and procedures. It was emphasized that participation was voluntary, confidential, and would have no impact on their academic performance. Following this briefing, written informed consent was obtained from each student. Upon completion of the simulation activity, participants were invited to complete the questionnaire. The process took approximately 10–15 minutes per participant, and completed forms were returned directly to the investigator.

Data Analysis: All data were analyzed using SPSS version 29.0. The analysis involved both descriptive and inferential statistics. Quantitative variables are presented as means (M) and standard deviations (SD), and the threshold for statistical significance for all inferential tests was set at $p<0.05$.

Ethical Considerations: Prior to commencing the study, administrative approval was obtained from the principal of the institute. All potential participants were then informed of the study's aims and procedures. They were assured that participation was voluntary, all data would be kept confidential and used solely for study purposes, and they could withdraw at any time without penalty.

Results

Demographic Data: The study involved 20 first-year tertiary healthcare students, with a gender distribution of 65% male and 35% female. As shown in Table 1, 70% of the participants were aged between 18 and 21 years.

Table 1 Sample Characteristics

Study Sample (n=20)	%	N
Gender		
Female	65	13
Male	35	7
Age		
18 – 21	70	14
22 – 25	20	4
26 – 29	10	2

Summary of Main Result: Nearly all participants (95%) found the simulation-based learning activity to be useful. For Mental Health Literacy, only 10% achieved an average score (119–136), while almost all (90%) had scores below average (35–118). Regarding Satisfaction with Current Learning, around 70% scored between 20 and 25, while only 30% scored below 20. For Self-Confidence in Learning, at least half (65%) scored between 31 and 40, around 30% scored between 21 and 30, and only 5% scored below 20 (Table 2).

Table 2 Summary of Main Result

Study Sample (n=20)	%	N
Usefulness of Simulation-based Learning Activity		
Yes	95	19
No	5	1
Mental Health Literacy		
35 – 110	55	11
111 – 118	35	7
119 – 136	10	2
137 – 143	0	0
144 – 160	0	0
Satisfaction with Current Learning		
0 – 9	0	0
10 – 19	30	6
20 – 25	70	14
Self-Confidence in Learning		
0 – 10	0	0
11 – 20	5	1
21 – 30	30	6
31 – 40	65	13

Result of Mental Health Literacy: Regarding mental health literacy, students demonstrated a low overall mean score of 109.0 (SD=8.0), as shown in Table 3. The item with the highest mean score (M=3.9, SD=0.6) indicated that students were confident about where to seek information concerning mental illness. In contrast, the item measuring the extent to which avoiding all activities or situations that made someone feel anxious would be helpful when experiencing difficulties managing emotions had the lowest mean score (M=2.1, SD=0.8) (Table 4).

Table 3 Mean Score of Mental Health Literacy

	M	SD
Mental Health Literacy	109	8.0

Table 4 Mean Score of Mental Health Literacy Items

Mental Health Literacy Items		M	SD
12	To what extent do you think it would be helpful for someone to avoid all activities or situations that made them feel anxious if they were having difficulties managing their emotions?	2.1	0.8
16	I am confident that I know where to seek information about mental illness	3.9	0.6

Result of Student Satisfaction: The participants reported a high level of satisfaction with the simulation-based learning activities, achieving an overall mean score of 21.1 (SD=4.5) (Table 5). The highest-rated items on the satisfaction subscale, both with a mean score of 4.3 (SD=0.9), pertained to the teaching materials used in the simulation, which participants found motivating and helpful for learning, and the instructor's teaching style, which was considered suitable for student learning (Table 6).

Table 5 Mean Score of Student Satisfaction with Current Learning

	M	SD
Student Satisfaction with Current Learning	21.1	4.5

Table 6 Mean Score of Student Satisfaction with Current Learning Items

Student Satisfaction with Current Learning Items		M	SD
1	The teaching methods used in this simulation were helpful and effective.	4.2	1.0
2	The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	4.2	1.0
3	I enjoyed how my instructor taught the simulation.	4.2	1.0
4	The teaching materials used in this simulation were motivating and helped me to learn.	4.3	0.9
5	The way my instructor(s) taught the simulation was suitable to the way I learn.	4.3	0.9

Result of Student Self-confidence: As presented in Table 7, students demonstrated high self-confidence in their learning, with an overall mean score of 32.0 (SD=6.3). The highest-scoring item (M=4.2, SD=0.8) highlighted that instructors utilized helpful resources for simulation instruction (Table 8).

Table 7 Mean Score of Student Self-confidence in Learning

	M	SD
Student Self-confidence in Learning	32.0	6.3

Table 8 Mean Score of Student Self-confidence in Learning Items

Student Self-confidence in Learning Items		M	SD
1	I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	4.0	0.9
2	I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	4.1	1.1
3	I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.	3.8	1.0
4	My instructors used helpful resources to teach the simulation.	4.2	0.8
5	It is my responsibility as the student to learn what I need to know from this simulation activity	3.9	0.9
6	I know how to get help when I do not understand the concepts covered in the simulation.	4.0	0.9
7	I know how to use simulation activities to learn critical aspects of these skills.	3.9	0.9
8	It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	4.1	0.9

Correlation between Student Satisfaction and Self-confidence: A significant positive correlation was reported between satisfaction levels and self-confidence levels ($r=0.83$, $p<0.001$) (Table 9).

Table 9 Correlation between Student Satisfaction and Self-confidence (n=20)

		Satisfaction	Self-confidence
Satisfaction	Pearson correlation	1	.83**
	p-value		<0.001
Self-confidence	Pearson correlation	.83**	1
	p-value	<0.001	

**Significant at $p<0.01$.

Discussion

This pilot study demonstrated the preliminary impact of using scenario-based simulation as a pedagogical tool to enhance satisfaction and self-confidence among tertiary healthcare students. The findings indicate that even a single simulation session can contribute significantly to improvements in these key areas. Specifically, students reported a high level of satisfaction with the learning activity, achieving an overall mean score of 21.1 out of a possible 25 (SD=4.5). This high satisfaction was driven by positive perceptions of the

teaching materials, which were found to be motivating and helpful, and the instructor's teaching style, deemed suitable for student learning (both with a mean score of 4.3, SD=0.9). Concurrently, students exhibited high self-confidence in their learning, evidenced by an overall mean score of 32.0 out of 40 (SD=6.3), with particular appreciation for instructors' use of helpful resources for simulation instruction (M=4.2, S=0.8). The observed strong positive correlation between satisfaction and self-confidence ($r=0.83$, $p<0.001$) further underscores that a positive and engaging learning experience directly contributes to students' belief in their abilities. This conclusion aligns with the extensive literature that consistently confirms the positive impact of simulation on satisfaction, self-confidence and skills development within healthcare education (Aebersold and Tschannen, 2013; Bdiri Gabbouj, et al., 2024; Hall, 2017).

These positive outcomes directly address the core weaknesses of traditional teaching methods, which criticized for their effectiveness to develop critical thinking and psychomotor skills vital for patient care (Alexander et al., 2023; Guerrero, et al., 2022; Hall, 2017; Li et al., 2025; Niu et al., 2023).

However, it is important to note the findings regarding mental health literacy. Despite the positive gains in satisfaction and self-confidence, students exhibited a low overall mean score of 109.0 (SD=8.0) on the mental health literacy scale. While students reported self-confidence in knowing where to seek information concerning mental illness (M=3.9, SD=0.6), the overall low MHL score suggests that a single simulation session may not be sufficient to significantly enhance comprehensive mental health literacy. This highlights a potential area for further development in curriculum design, perhaps requiring more extended simulation exposures, or integration with other pedagogical strategies specifically targeting knowledge acquisition in mental health.

As a pilot study, this research is subject to several limitations. First, the small sample size (n=20) and the single-institution setting restrict the generalizability of these findings. Furthermore, the single-group, cross-sectional design could not establish causality and measure change over time. Future research should aim to address these limitations by employing a larger, multi-institutional sample and a randomized controlled trial design that includes a control group to more robustly assess the impact of scenario-based simulation on both affective and cognitive learning outcomes, including a more detailed exploration of mental health literacy improvement.

Conclusion

This pilot study provides preliminary evidence that scenario-based simulation is a valuable and feasible addition to mental health nursing education. It significantly enhances students' knowledge and self-confidence while providing a deeply valued learning experience that bridges the gap between theory and practice. The results strongly support the strategic adoption of simulation as a core pedagogical tool to better prepare the next generation of health care professionals.

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