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SELF-CONFIDENCE AND SATISFACTION AMONG NURSING STUDENTS WITH THE USE OF HIGH FIDELITY SIMULATION AT ARAB AMERICAN UNIVERSITY, PALESTINE

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Abstract

High fidelity simulation practice has now become an important part of the education of nursing students to enhance their clinical skill confidence and satisfaction. To achieve our aim of providing the community with highly skilled nurses, the current study set out to assess the level of self-confidence and satisfaction among nursing students with the use of High Fidelity Simulation at Arab American University of Jenin (AAUJ). The research design was a quantitative, cross-sectional descriptive study, with a total of 440 nursing students who were in year 2, year 3 and year 4 of the BSc program at the Arab American University of Jenin. The AAUJ is the first university to introduce HFS among Palestinian universities. Data was collected using: (a) demographic survey, (b) "Self-Confidence and Satisfaction among nursing students Questionnaire", created by NLN which consists of 13 items with five points on the Likert scale. Majority of the participants were female (53.6%), ages 21-22(58.6%). Most (50.5%) of the participants were in the second year of study, 48.9% of the total participants were engaged in the adult health nursing specialty course and the majority (58.0) had GPAs between 1.75 and

2.75. This study found that most nursing students were satisfied (80.7%) and self-confident (75.4%) with the simulation-based learning in nursing education. Moreover, we found no statistically significant differences between age, gender, and the total mean score from the questionnaire. However, specialty course and year level returned some difference among the groups (P<0.000). The study's findings also revealed that high-fidelity simulation improves nursing students' self-confidence and satisfaction. Given the shortage of clinical settings, simulation can bridge the gap as an effective teaching tool and an innovative pedagogical strategy in Palestine. Future studies might focus on maternity nursing students' perceptions and experiences regarding high-fidelity simulation due to the restrictions applied to male students' participation in maternity courses.

Keywords

Satisfaction, Self-Confidence, HFS, Palestine

1. Introduction

Simulation practice is now an important pedagogical tool in nursing education as a result of challenges in healthcare related to increasing concern over patient acuity, patient safety and clinical site shortage (Kim et al., 2015). With simulation, learners are afforded the opportunity to synthesize cognitive, affective and psychomotor skills with various clinical scenarios in a safe and supportive environment (Fong, 2013; Agha, Alhamrani, & Khan, 2015). Through high-fidelity simulation, students are also afforded the opportunity to apply the theoretical knowledge gained during lectures, to learn from errors without putting patients in danger, to learn from their peers, and to bridge the gaps between knowledge and practice (Lewis, 2012; Onello & Regan, 2013; Abelsson & Bisholt, 2017).In addition, HFS helps acquire advanced skills, which can be improved and synthesized with interactive repeated scenarios (Decker et al, 2008).

Simulation using high-fidelity techniques includes using a convincing real environment that incorporates a sophisticated mannequin, software, and actual medical equipment and personnel, which approximates real life and mimics clinical settings (Tuoriniemi & Schott-Baed, 2008). They can be programmed to produce different critical case scenarios to which the student is to respond competently while assessing vital functions such as cardiac rate and rhythm, respiratory rate, oxygen saturation, blood pressure, lung sounds, and body temperature. This

pedagogical gold standard enables the students to acquire high-level clinical skills in virtual reality before they get the chance to apply them in a real setting (Bremner et al., 2006; Leigh & Hurst, 2008; Seropian, 2003; Shrestha, S. 2016).

Omer's (2016) study, carried out among 117 nursing students enrolled in a nursing program that included 30% clinical simulation, found that simulation improved nursing students' satisfaction and their level of self-confidence in their clinical practices (Omer,2016).

Kim et al. (2015) studied the quality of five simulations of maternity scenarios on the problem-solving and self-directed learning skills with 90 experimental and control group participants. The problem-solving ability of the experimental group's average score was considerably higher than that of the control group. It was equally found that maternity simulation practice was an effective tool for improving problem-solving ability. It was, however, found not to be effective in improving self-directed learning ability. Gudayu et al. (2015), in their study of 141 midwifery students that examined satisfaction, self-efficacy, and experiences of simulation-based education, found that 54.2% of the respondents were confident and 50.7% were satisfied in the current simulation learning.

Hurst (2015)'s study focused on nursing students' perceptions of selected aspects of HFS on students 'self-confidence and satisfaction in simulation-based study. Students' academic year (sophomore and senior students) was the most significant relationship identified. Students perceived HFS as an effective teaching strategy and that brought great satisfaction and self-confidence.

Maternity students' clinical judgment/critical thinking abilities were examined by Hall (2014) through a combination of simulated and hospital-based instruction. The researcher relied on maternal newborn content mastery exams and focused on clinical reasoning critical thinking skills. Senior nursing students who received instructional methods via simulated scenarios along with hospital-based clinical instruction exam scored higher on the critical thinking skills than students participating solely in hospital-based clinical instruction.

The published literature and the results of practical experiences provided by various institutions reveal good outcomes, which encourage the move towards adopting HFS as an accepted educational modality for nursing education. The present study focuses on an undergraduate nursing program in Palestine, which strives to better deliver nursing education and improve overall quality of care by incorporating HFS into the curriculum. Furthermore, good

quality patient care and improved patient outcomes demand the preparation of high-caliber skilled nurses. The AAUJ is the only Palestinian university that uses HFS labs in its curriculum, and simulated experiences from10% of specialty course assessment. Thus the present study set out to assess students' satisfaction and self-confidence with simulation using high-fidelity techniques at AAUJ. This study also set out to assess high-fidelity simulations' impact on self-confidence and satisfaction as it relates to such factors as age, gender, academic level, GPA, and specialized course.

2. Materials & Methods

The research design was a quantitative, cross-sectional descriptive study, with a total of 440student nurses in the second, third and fourth years of their BSc program. This study took place at the Arab American University of Jenin (AAUJ)during the 2nd semester of the 2015-2016academic.We collected data with the aid of (a) a demographic survey, (b) "*Self-Confidence and Satisfaction among nursing students instrument" designed* by the Nursing Student's League (2006). It comprises 13 items with five points on the Likert scale, with the first 5 items designed to measure the satisfaction and the rest items used to measure self-confidence in learning. We analyzed data with the aid of Statistical Package for Social Science (SPSS) program version 20. Percentage, t-test and one-way ANOVA were used.

3. Results

Tables 1: *Demographic characteristics*

Variable		Frequency	Percentage
Gender	Male	204	46.4
	Female	236	53.6
Age<21		157	35.7
	21-22	258	58.6
>22		25	5.7
Year	2nd	222	50.5
	3rd	138	31.4
	4th	80	18.2
Course	Adult	215	48.9
	Advanced	31	7.0
Pediatric		67	15.2
	Maternity	127	28.9

GPA	1-1.75	19	4.3
	1.75-2.75	225	58.0
	2.75-3.50	144	32.7
	3.5-4	22	5.0

We tabulated the results of the questionnaire and carried out statistical analyses. Table 1 shows the demographic data, including age, gender, year of study, specialty course and GPA. The majority of the participants (53.6%) were female, and 58.6% were from 21to 22 years old. Most (50.5%) of the participants were in the second year of their study, 48.9% of the total participants were engaged in the adult health nursing specialty course, and the majority (58.0) had a GPA between 1.75-2.75.

Table 2 shows student nurses' responses to "*Self-Confidence and Satisfaction among nursing students Questionnaire"* with the mean score proportion. The instrument proportion of mean score for satisfaction and self-confidence were80.7(SD=1.72) and 75.4 (12.7), respectively. This reveals that overall undergraduate student nurses in the faculty of nursing at the AAUJ were satisfied and had high self-confidence with the learning currently obtainable with the simulation activity.

Table 2: *Self-Confidence and Satisfaction among nursing students*

Level of Satisfaction with Learning	A %	UN %	D %
This simulation was helpful and effective for learning.	80.5	10.5	9.1
The learning materials and activities provided in the simulation are relevant to the medical surgical curriculum and useful for my learning.	80.5	12.5	7.0
My instructor did a good job of teaching the simulation.	83.4	9.5	7.0
This simulation contained useful and motivating materials that I found helpful.	78.6	11.6	9.8
My instructor(s) brought the simulation to my level of learning.	80.7	11.4	8.0
Self-confidence with Learning			
With the help of my instructors, I am gaining a mastery of the content of the simulation activity.	77.0	14.1	8.9
I believe that critical content relevant for the mastery of the medical surgical curriculum is covered in this simulation.	78.2	12.3	9.5
I believe that the skills and important knowledge I am getting from this simulation will enable me to perform the tasks required in a clinical setting.	79.8	10.0	10.2
I was taught the simulation with the aid of useful resources.	83.0	8.4	8.6
As a student, I will be responsible for ensuring that I learn all that is	78.6	11.6	9.8

required of me in this simulation activity.			
I know help is available for any concept I do not understand in the simulation and I know how to access such help.	44.5	40.0	15.5
I have learnt that simulation activities can enable me to learn important aspects of these skills	80.5	11.8	7.7
The instructor is responsible for teaching me what I need to learn of the simulation activity content in class.	82.0	9.8	8.2

According to table 3, no statistically significant differences existed between gender, age, student's grade point average (GPA), and the total mean score from the questionnaire (P=0.203; P=0.385;P=0.61,respectively). But some difference existed between groups for years of study and specialty course (P<0.000).

Table 3: *Demographic factors with total mean score*

Variables	**F**	**p-value**
Gender/total mean	T:1.276	0.203
Age/total mean	0.93	0.385
Year Level/total mean	16.2	<0.000
Specialty course/total mean	10.3	<0.000
GPA/total mean	.62	0.61

(*) Statistically significant at p<0.05

4. Discussion

This study shows that HFS improved undergraduate student nurses' self-confidence and satisfaction with current training. This study's result is more significant than that of Gudayu et al.'s (2015) study, where the average scores for satisfaction and self-confidence in learning were 54.2% and 50.7%, respectively. Students were more satisfied than confident possibly because simulation was newly introduced into our curriculum, and our students had no previous experience with these kinds of highly sophisticated equipment. This position is supported by Gudayu et al.

Participants had great satisfaction and self-confidence with the integration of HFS into the nursing curriculum. This was demonstrated with the study result which shows that, out of the 13 questions in the survey, the average percent agreement was 77.5%. These results agree with

several previous studies which reported that HFS improves students' level of self-confidence and satisfaction with their training (Agha, Alhamrani, & Khan, 2015;Omar,2015;&Kim, 2016).Furthermore, the item "My instructor did a good job of teaching the simulation" got the highest response (83.4%) of the questions that measure satisfaction; "I was taught the simulation with the aid of useful resources" got the highest response (83.0%) of the questions that measure self-confidence. This demonstrates that student nurses felt more confident and satisfied in the way that simulation was conducted by their instructors than by themselves. Moreover, among demographic factors such as age, gender, student GPA and the total mean score, which measure both students' self-confidence and satisfaction with learning, there were no important statistical differences identified. But type of specialty courses and year in program had some difference among the groups (P<0.000). There are similarities between the result of this study and that of Omar's (2016) study, which showed a significant correlation between demographic characteristics (age, stream, courses) and satisfaction with simulation but not self-confidence.

5. Conclusion

Simulation can be an effective teaching tool and an innovative pedagogical strategy in Palestine given the shortage of clinical settings. Simulation scenarios also provide an effective strategy for improving nursing students' competencies in such specialized settings as women's and pediatric health, critical care, and emergency care**.** Moreover, satisfaction with the simulation experience on the part of nursing students will help them improve their self-confidence, which will enhance the actual delivery of patient care. We recommend that more simulation should be used instead of old-style clinical practice.

5.1 Scope of future research

There is a need for future research into maternity nursing students' experiences regarding high fidelity simulation due to existing restrictions on male students' participation in maternity courses and even in observing the birth process.

5.2 Study Limitations

This study was carried out in only one Palestinian university. This fact represents a limit to which the impact of using simulation lab in Palestine on students can be understood. Future studies can examine other factors that were not taken into consideration in this study, such as students' learning needs in each specialty course correlated with students' competencies in each

level. Such future studies on the same topic would help deepen the understanding and definition of the impact of simulation labs on students' learning and skills acquisitions.

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