

What is the Satisfaction and Self-Confidence in Learning of Undergraduate Saudi Nursing Students who have Completed or Currently in Their Internship Experience with High-Fidelity Simulation Labs?

Yasir S Alsalamah*

MSN, RN, Department of Nursing, Critical Care, King Abdulaziz Medical City, Ministry of National Guard-Health Affairs, Riyadh, 11426, Saudi Arabia

DOI: [10.36348/sjnhc.2020.v03i07.004](https://doi.org/10.36348/sjnhc.2020.v03i07.004)

| Received: 08.07.2020 | Accepted: 16.07.2020 | Published: 21.07.2020

*Corresponding author: Yasir S Alsalamah

Email: Alsalamahya@ngha.med.sa

Abstract

Purpose: This study aims at assessing the impact of Saudi Arabia nursing students in their internship experience with High-Fidelity Simulation Labs. Focus is primarily on the satisfaction and self-confidence of the students in learning and also the ability of the program in preparing the students for the actual practice. **Design:** The study used a descriptive quantitative data collection method. Specifically, an online survey method via Survey Monkey was adopted and focused on collecting data that was related to learning tools in satisfaction and self-efficacy. Thirteen questions (items) were designed, five of which were about satisfaction, whereas eight addressed self-confidence. The theoretical framework chosen was from Bandura's social learning theory, which postulates that people learn from one another through observation, imitation, and modeling. Moreover, according to the theory, there are five basic human cognitive human capabilities, which are the ability to use symbols, learning through observation, forethought, self-regulation, and self-reflection. The study used descriptive data analysis, specifically the Statistical Package for Social Sciences (SPSS) version 25, to analyze the data collected. **Participants:** Nursing students from a private college in Saudi Arabia and the Saudi Arabian Cultural Mission (SACM) in the USA. **Findings:** The key findings from the research is that students increased their satisfaction and self-confidence while learning with (HFS). In this case, the students were satisfied with the materials, methods of learning, and activities involved when learning with HFS since this demonstrated their knowledge and experience in a clinical setting. **Conclusion:** High-Frequency Simulation offers a great opportunity for the students to have a near firsthand experience of how to take care of the patients without putting the actual patient's health at risk. The significance of the study is that it can be instrumental in aiding educators in Saudi to improve and support the nursing students by utilizing HFS.

Keywords: internship experience, satisfaction, practice, self-efficacy.

Copyright @ 2020: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

INTRODUCTION

The opportunity for nursing students to offer safe care in today's complex and high-risk environment is limited. Cases that involve hazardous patient care are not an exception for students learning practices, and as a result, simulation gives learners a chance to apply what they have learned in nursing school and apply them in a safer environment. Students are given more opportunities to keenly participate in problem-solving and practice decision making using human patient simulators in a student-centered environment without threatening the life of the real patient. Simulation offers innovative approaches to improve traditional clinical experiences [1].

The old teaching method of "see one, do one, and teach one," which has long been used to teach nursing skills and to promote the acquisition of clinical expertise is no longer recognized as the best approach to providing students with the required knowledge. Instead, (HSF) is used to develop self-confidence as well as create a productive environment for nurses to work. According to Jessie *et al.*, [2], it's when nurses are confident in themselves that they can focus on patient needs; thus, its vital in helping them be safe and competent practitioners while focusing on the needs of the patient [2]. The benefit of simulation is it allows students to practice their skills and their ability to make decisions through various real-life situations. Simulation thus teaches students, promote the acquisition of skills and aid in the development of

clinical judgment about complex situations with real lifelike examples [2].

Simulation labs also provide students with the ability to experience clinical concepts that may be hard to understand in the traditional clinical setting [3]. Furthermore, simulation activities, such as the use of a static manikin (manikins that cannot communicate that are specially used in training nurses' skills). They have had remarkable value in nursing education for many years as they help to ensure skilled and competent graduates ready for technological advances in nursing training [3].

LITERATURE REVIEW

Theoretical Framework

Bandura's [4] theory of social learning assumes that people learn from one another; this learning can be through observation, imitation, and modeling. People learn through observing other behavior and noticing the outcomes of their behavior. The five essential cognitive capacities of human beings are the ability to use the symbols, learn through observing, planning, self-management, and self-assessment [4]. By using symbols, humans translate their experiences into cognitive models to guide their subsequent actions. Bandura [4] explains his theory by four models: observation, attention, retention, reproduction, and motivation.

In nursing, Bandura's [4] theory of cognitive learning is used to build confidence and self-efficacy in students and nurses alike. Bandura's [4] theory provides four models of the data to conclude to a decision. This process can be achieved by paying attention to the events occurring around the observer. The first component of Bandura's [4] theory is attention, noted observers learn by paying attention to the events happening around them. This component finds its application in nursing in such a way that nurses learn by paying attention to the clinical environment around them [5].

Bandura's [4] theory also finds application in nursing when clinical nurses are exposed to the clinical scenario for the first time. It is applied when they are new to the ambiance in their training period of one year before the exposure to the clinical scenario, attains confidence through practicing on simulation models. The framework of Bandura's [4] theory that the nurses learn through observation, especially by observing the behavior [6].

Furthermore, the observation leads to retention when the observer recalls the information either by visual or verbal representation [6]. In the third component of Bandura's [4] model, the information retained must be put into proper action; the reproduction component of Bandura's [4] model. By remembering the information, the nursing students and

nurses develop a sense of confidence and self-efficacy, while internalizing the information. They can recall the memory of the particular event later when required in their clinical practices. Bandura [4] defines self-confidence as the belief one has in their ability to execute a given task successfully. The final component of Bandura's [4] theory is the motivation. Individuals feel motivated to put in more effort by applying their knowledge in clinical practices [5].

Impact of using HFS on Students' Learning and satisfaction

Kinney *et al.*, [7] utilized low fidelity simulation in nursing education. An experiment was implemented with two strategies that are a teacher-centered one-hour lecture versus a one-hour time limit combined with CD-ROM. A sample was drawn from a population of 42 2nd quarter, degree nursing students at Midwestern regional Campus. The sample size was 42, of which the control group was 21, and the experimental group was 21. The control group was given (n=21) was given a post-test one. In contrast, the experimental group completed the low fidelity simulation in the computer lab, where they were provided with headphones to prevent distractions. Similar multiple-choice questions were used for both pre-test and post-test 1. Post-test 2 covered similar content, though with different questions. The students participating in the study completed all the tests. It was concluded that low fidelity simulations did improve the performance instantly as both groups' mean scores improved with the mean score increasing rapidly [7].

Furthermore, there was no such significant effect, in the long run, recommending further studies to maximize the use of low-fidelity strategies. There can be various reasons affecting the result. Thus, more detailed research was needed to conclude the final result since the LFS (low-fidelity simulation) led to an immediate increase in the mean score (Posttest 1). Still, as time went by, it was not responsible again for the retention of skills [7].

A study by Zapko *et al.*, [8] used Educational practices, the satisfaction of students, and their confidence in learning scale. The Educational Practices contained 16 items, the views on different educational practices, and the importance of simulation. Ten items were used to examine the attitude toward learning and examined diverse ways of learning and high expectation. The scores obtained were summed up where a higher score correlated with the best educational practices in simulation [8]. The study used the primary data collection methodology for which convenience sampling was used to choose 97 students from year one and 102 students from year two at a regional university. The finding of the study gave support for using simulation in education since the students were satisfied and felt that simulations were

important for learning since through simulation, their confidence to perform different duties improves [8].

Lubbers *et al.*, [9], experimented using a sample of 61 undergraduate students at Midwestern college. The data was collected through NLN simulation that is the educational practices, self-confidence in learning, and a simulation scale after 5-week simulation-based course. Their first acute clinical care was completing the community-based simulation [9]. Although the study used a low sample size, the conclusion of the study was positive. A great level of confidence and satisfaction was shown by students after this medium-fidelity simulation since the significance was obtained for the first question, and no substantial difference was reached for the second Research Question [9]. Furthermore, the study questions and simulations helped students exercise their clinical skills by having a role model in front of them to mimic.

Fawaz *et al.*, [10] used a quasi-design of the experiment to explore the effect of HFS development of judgment and motivation for nursing students in Lebanon [10]. The targeted population included the students pursuing nursing currently enrolled in an undergraduate program with no simulation experience. The number of students from A was 26, while those from university B were 26. The experimental group was students from the university who had simulation intervention, whereas those from university B served as the control group with traditional methods that is classroom notes. A simulation scenario of a clinical case of acute (CHF) was adopted. The simulator showed specific physiological parameters, and students were tasked to respond to the needs of the simulated patient. The authors considered the demographic characteristics of the participants, such as gender and age participant's age, and previous experiences of the participants, which further enhanced the scope of the study and presented a wide range of data. Similar to the weakness of the previous article, Lubbers *et al.*, [10], the sample size was minimal for the ability to generalize the results to all the population.

Furthermore, only private university nursing students took part in the study. However, the finding of the Fawaz *et al.*, [10] showed that significant improvements in the motivation and clinical judgment of nursing student was recorded due to exposure to HFS. It was found that the integration of HFS would fill the gap between practical experience and theoretical knowledge [10].

Jessie *et al.*, [2] used a strategy developed in consultation with health science librarians aiming at establishing unpublished and published literature on the effectiveness of simulation on the learning outcomes for medical practitioner programs using a three-step search strategy [2]. An initial search was undertaken to identify keywords followed by a second extensive

search aiming at identifying all finding all the keywords in the databases. Keywords such as patient, nursing, simulation, and computer simulation were searched in the database [2]. Two independent reviewers assessed quantitative papers selected for retrieval for methodological validity before inclusion in the review using two standardized critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument [2]. This study was a literature-based review of HFS. The main strength of this study is that it utilizes data collected from the literature review of HSF. Still, its weakness is that the data collected cannot be used to reveal the characteristics of the general population. A weakness was it was not generalized.

A descriptive post-test was designed and employed by Tuttici *et al.*, [11], as part of a larger randomized controlled intervention study. The purpose of this study was to describe and help clarify the learning style and characteristics of third-year nursing students and to evaluate their satisfaction. Tuttici *et al.*, [11], also wanted to encourage nursing students in the use of simulation labs experience. Most of the third-year nursing students were satisfied and believed simulation to be an effective teaching strategy. Also, students preferred to learn from a stimulating situation rather than a theoretical perspective. The main strength of this study is that the study was done at the Comprehensive Midwestern university, which included a sample size consisted of 236 students of juniors and seniors who had already completed their clinical courses that included simulation, with data collection occurring after completion of the clinical rotation [11]. The weakness of this study was the variation in teaching abilities, and experience of the clinical faculty may also influence student's self-efficacy, and that was not included in this study [11]. The results showed the effectiveness of HSF in nursing students. Moreover, it concluded that third-year nursing students' value high-fidelity simulation, irrespective of their learning styles, and is particularly suited to millennial students [11].

Impact of HFS on Self-Confidence

A cross-sectional study was carried out by Asboshiqaha *et al.*, [12], to investigate the validity of a clinical training program in Saudi Hospitals. The included hospital for the study was Tertiary Hospital in Riyadh, Saudi Arabia. Student's completed their clinical experience between October 2016 and March 2017 and included 300 students [12]. There was a survey study in which the validity and cultural adaptation of the "Self-Efficacy for Clinical Evaluation Scale (SECS) [12]," which is an Arabic version of self-efficacy training program instrument was studied and verified. The finding of the article concluded that the SECS Arabic version was a valid and reliable instrument to determine the self-efficacy and satisfaction level of nurses [12]. Asboshiqaha *et al.*, [12] determined female nurses had increased clinical

confidence compared to their male counterparts. This finding indicated gender influenced the knowledge and self-confidence of the nurse.

A study by Saeid [13], explored the impact of stimulation on the confidence of pediatric nursing students. This study used Bandura's [4] social learning theory of nursing as a theoretical framework. A total of 158 students participated in this study. There was a questionnaire study, with the knowledge and profile questionnaire used in this study. The simulation models focused on respiratory and cardiac scenarios and were conducted in a pediatric simulation lab. As Bandura [4] stated, learning is gained by practice and retention. This model helped nurses to overcome fear and anxiety associated with clinical exposure. A pre-test and post-test design were used in the study, and the high score obtained after the simulation practice shows a high level of satisfaction and self-confidence in the nurses. The scores were as following: the post-simulation self-efficacy was positively correlated with satisfaction ($r = 0.46$, $P = 0.001$) and self-confidence ($r = 0.50$, $P = 0.001$). Satisfaction with simulation was also positively correlated with self-confidence ($r = 0.46$, $P = 0.001$) [13].

A systematic review was conducted by Thomas *et al.*, [14] on the use of simulation training to improve skills and knowledge of the students. Thomas *et al.*, [14] noted simulation was a widely used technique to improve the self-confidence and self-efficacy of the nurses. It was further demonstrated that the use of simulation was increasing and can be utilized as an effective pedagogy to improve self-confidence, efficacy, and knowledge of clinical scenarios in students. Thomas *et al.*, [14] evaluated the quantitative and qualitative research work regarding the use of simulation published in 2000-2016.

Khalail [15], on the other hand, completed a descriptive quantitative study using a pre and post design, including students from Zefat Academic college in Israel. The students were to complete a questionnaire comprising of background variables about the second year of study of the nursing students [15]. Two months later, each student began their first clinical experience at the hospital in an adult internal or surgical department. All the students involved in the research participated in two simulations in separate weeks during their first months of clinical experience [15]. After each scenario, the instructors conducted a 15-minute structured debriefing to answer questions, clarify concerns, and offer feedback on students' performance and knowledge.

Following the first clinical experience on two simulation days, each student was asked to complete the post-test. The test questionnaires (T2) comprised a scale ranking anxiety, self-confidence, caring ability, satisfaction with simulation, and caring efficacy [15]. The self-administered structured questionnaires took

about 15 minutes to complete, and data was collected before the first clinical and simulations practice (T1), and four months later (T2) after they had finished their first clinical practice in a hospital setting. The main strength of the research findings that it was a descriptive quantitative study based on the research done on the 61, 2nd year nursing student's participants on their 1st clinical experience. Data were collected in two phases, at first on their 1st simulation practice and then, after their first clinical practice and then hierarchical linear regression was used to assess the hypothesis of the study. Thus, the study aims to identify the effectiveness of clinical simulation, including the HPS (Human Patient Simulator) and others like case studies, etc. on reducing the stress level of the nursing student in their first real clinical setting. Other variables that can have an impact on student's anxiety and low confidence include the clinical setup, working environment, or collaboration with others was not included in the study. However, the result of the study showed that anxiety and stress reduced. In contrast, the caring and self-confidence increased among the students as caring efficacy was positively associated with caring ability at T1 ($r = 0.31$, $P = 0.02$) and T2 ($r = 0.41$, $P = 0.02$) [15]. Moreover, anxiety negatively predicted caring efficacy. Hence, the author concluded that using the simulation learning technique is effective and useful [15].

METHODS

The methodological design that was used for this study was a descriptive quantitative design to explore the perceptions and satisfaction of Saudi undergraduate nursing students. They had completed or currently experiencing a nursing residency program or "Internship" using HFS. A tool developed by the NLN [16] for beginning simulation programs, the "Student satisfaction, and self-confidence in learning," was used to evaluate the satisfaction and self-confidence of student nurses. The "Student satisfaction and self-confidence in learning" [16] tool was administered using an anonymous survey posted on Survey Monkey. Survey Monkey was selected as it is a secure website that maintains the anonymity of the participants, and at the same time, provides the researcher with the finding of the participants. Moreover, the data collection was securely stored in multiple backup resources and apps such as Microsoft Excel and Google Drive [17].

Participants

For this study, the sample population included Saudi Arabian undergraduate nursing students who are studying in the USA and Saudi Arabia. A convenience, non-probability sampling technique was adopted. The approach comprised a minimum of 36 Saudi undergraduate nursing students. They, either had or were currently experiencing HFS during their nursing residency program and had met the inclusion criteria of the study. For this study, the following inclusion criteria were used:

- The students were undergraduate nursing students who had completed their nursing residency programs or were then experiencing the use of HFS, whether the students are in the USA or Saudi Arabia.
- The participants were either in their pre-licensure program of BSN or who had already graduated from a BSN program in nursing and had experienced the use of HFS.
- All the participant were above 18 years old and were able to communicate in the English language in both writing and speaking

Setting

The study was conducted in two different organizations to establish the perceptions and satisfaction of Saudi nursing students in Saudi Arabia, including students who were studying abroad (USA) to gain a better perspective and information regarding the research study. The study was done in a Government agancy in the USA. The second set was a private college in Saudi Arabia that is well respected and equipped with regard to teaching and preparing nursing students into their nursing residency program as well as the real world of nursing by utilizing HFS labs [18]. Moreover, as a part of the college’s rules, nursing students were under supervision during their nursing internship from both the nursing faculty and the nursing education department.

Data Collection and Analysis

Survey data were collected for two weeks from the mid to the end of March of 2019 using a link from Survey Monkey. A total of fifty-five surveys were received. Nineteen surveys were excluded due to the participants withdrawing from completing the survey. However, a total of thirty-six participants completed their surveys (see Table-1).

SPSS version 25 was used to conduct data analysis. Descriptive statistics were used to summarize the data that were obtained from the participant’s completed surveys. Tables were used to emphasize the data results and provide an accurate interpretation of the findings. Also, correlation statistics were calculated to determine the significance of the participant’s demographic characteristics on their take on self-confidence and satisfaction with HFS. A typical significance value for nursing studies was set at a p-value of less than 0.05 as purported by Grove, Burns, & Gray [19].

RESULTS

Finding of Demographic Data

The main purpose of using demographics questions (see Table-1) was to identify gender, average age, and current status of the student. The student

within the study may have been currently enrolled within the nursing residency program or may have already completed the program. The total participants in this descriptive study were (n = 36) with identified males as the majority with the frequency of (n = 31) while females were the minority (n = 5). The average participant's age was between 27 to 28 years old. The data further suggested that a greater number of participants held a bachelor’s degree in nursing (n=25), followed by those currently in the fifth year of the nursing program completing their nursing residency program (n=8). Three participants indicated that they prefer not to answer as their response.

Table-1: Survey Section 1: Participants’ Demographics Characteristics (N = 36)

Characteristics	f	%
Gender		
Male	31	86.11
Female	5	13.89
Prefer not to answer	0	0.00
Average Group Age 27-28		
Educational level		
Completed BS degree	25	69.44
Currently in internship	8	22.22
Prefer not to answer	3	8.33

The Learning Scale for Self-Confidence and Student Satisfaction

This section presents a summary of the participants’ responses to the NLN [16] Student Satisfaction and Self-confidence in Learning Scale. The survey (see Table-2) consisted of two parts. The first consisting of five items for self-confidence and the other eight items for satisfaction with the current learning. The study utilized a Likert Scale, which started with strongly disagree and ending with strongly agree as well as preferring not to answer. Also, 13 items of the scale focused on the two main concepts of this research study, which were satisfaction and self-confidence. Satisfaction was measured via materials and activities as well as the teaching methods used, whereas, content mastery ability of the student and its applications in a nursing setting was used to measure Self-Confidence [16].

Furthermore, an examination of the students’ feelings and active learning related to the simulation learning activity took place in this survey. The Likert scale with points 1 to 6 was used to gather responses with five indicating strongly agree, one strongly disagree, and six preferred not to answer. The total possible range was from 13 to 78, as higher scores indicated a higher level of self-confidence and satisfaction regarding learning with HFS labs. The highlighted points in bold are the significant points that emerged from the data.

Table-2: Saudi Nursing Satisfaction and Self-confidence Scores (N = 36)

Items	Mean (SD)	Min	Max	≤ 3 *		≥ 4 *	
				N	%	N	%
Satisfaction with Current Learning							
1. The teaching methods used in this simulation were helpful and effective.	3.64 1.24	1	5	8	22.22	28	77.78
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical Surgical curriculum.	3.81 1.02	1	5	7	19.44	29	80.56
3. I enjoyed how my instructor taught the simulation.	3.86 0.98	1	5	7	19.44	29	80.56
4. The teaching materials used in this simulation were motivating and helped me to learn.	3.56 1.34	1	5	10	27.78	26	72.22
5. The way my instructor(s) taught the simulation was suitable for the way I learn.	3.69 1.23	1	5	14	38.89	22	61.67
Overall Satisfaction	3.71 1.16						
Self-confidence in Learning							
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	3.75 1.19	1	5	10	27.78	24	66.67
7. I am confident that this simulation covered critical content necessary for the mastery of medical-surgical Curriculum.	3.83 1.01	1	5	9	25.00	27	75.00
8. 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	3.86 1.16	1	5	8	22.22	28	77.78
9. My instructors used helpful resources to teach the simulation.	3.69 1.24	1	5	9	25.00	27	75.00
10. It is my responsibility as the student to learn what I need to know from this simulation activity	3.92 1.16	1	5	7	19.44	29	80.56
11. I know how to get help when I do not understand the concepts covered in the simulation.	3.89 1.03	1	5	6	16.67	30	83.33
12. I know how to use simulation activities to learn the critical aspects of these skills.	3.81 1.02	1	5	10	27.78	25	69.44
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	3.72 1.27	1	5	7	19.44	29	8.56
Overall Self-confidence	3.81 1.14						

Perception and Satisfaction

The first five items that were scored by students regarded their perceptions, as well as satisfaction in learning with high fidelity simulation labs (HFS), (see Table-2), indicate scores satisfaction subscale mean 3.71/5 (SD =1.18). The range of the students' responses to each item of the satisfaction category ranged between (1 being strongly disagreed, five strongly agree, and six prefer not to answer). The score of each satisfaction item indicated a mean from 3.56/5, SD = 1.36) to 3.86/5, (SD = 0.99). The range of scores that indicated participants agreed/strongly agreed they were satisfied with their simulation experience was from 22/36 (61.67%) to 29/36 (80.56%).

The item number three of the satisfaction subscale, which was "I enjoyed how my instructor taught the simulation," scored the highest mean of (M = 3.86/5, SD = 0.99), which reflected that majority of the participants were delighted with the statement. Students' responses on item three reported that 29/36

students (80.56%) scored between (agree – strongly agree); 2/36 students (5.56%) reported a score of (undecided); while 5/36 students (13.89%) scored either (disagree or strongly disagree).

On the other hand, the fourth satisfaction subscale item "The teaching materials used in this simulation were motivating and helped me to learn," an item of the NLN (2005) Student Satisfaction and Self-Confidence in Learning Scale, self-rated the lowest mean of (M = 3.56/5, SD = 1.36). Eight students (8/36, 22.23%) reported scoring either 1/5-2/5 (strongly disagree or disagree). In comparison, 2/36 students (5.56%) self-rated as undecided for this item, and 1/36 (2.78%) stated their answer as (preferring not to answer), while 26/36 (72.22%) students self-rated between (agree –strongly agree). Furthermore, most responses were observed and analyzed were mostly between scoring (agree to agree strongly) with satisfaction subscale items such as one, two, three, four, and five. At the same time, the rating of disagreeing,

strongly disagree, undecided, and prefer not to answer was reported by a few students see (Table-2). Overall, most of the students who participated in the study agreed/strongly agreed they were satisfied with the simulation experience.

Perception of Self-Confidence and Satisfaction

Descriptive statistics were utilized to summarize the scores from the students regarding the students' self-rating of their self-confidence during the experience of the HFS labs see (Table-2). Students' responses to each item of the perception of self-confidence category ranged between (1 being strongly disagreed, five strongly agree, and six prefer not to answer). The average subscale was 3.81/5 (SD =1.15), and the self-confidence means a score of each item ranged between 3.69/5 (SD = 1.26) to 3.92/5 (SD = 1.18). The range of scores that indicated participants self-rated their level of self-confidence as they agreed/strongly agreed with their simulation experience was from 27/36 (75%) to 30/36 (83.33%). Item five of the self-confidence subscale purported that the student has a responsibility to learn from the simulation what they would want to. This item had the highest mean among the other self-confidence items as the mean score was ($M = 3.92/5$, $SD = 1.18$), which showed that most of the students agreed with the question's content that was given. Twenty-nine participants (29/36, 80.56%) scored between 4/5-5/5 (strongly agree-agree); 2/36 participants (5.56%) reported a score of (undecided); while 7/36 students (19.44%) scored either (disagree or strongly disagree), and no score was reported for (prefer not to answer).

At the same time, Item four of the self-confidence subscale "My instructors used helpful resources to teach the simulation," scored as the lowest mean of ($M = 3.69/5$, $SD = 1.26$); 7/36 participants (19.44%) self-rated as 1/5-2/5 (strongly disagree or disagree), and 2/36 students (5.56%) self-rated as (undecided) while 27/36 participants (75.00%) self-rated between 4/5-5/5 (strongly agree-agree). The rest responses of the self-confidence items were almost agreed with the subscale, which consisted of eight items regarding the students' take on self-confidence and satisfaction, at the same time, strongly disagree, disagree, undecided, and prefer not to answer scale rating were scored by a few participants.

DISCUSSION

Discussion of the Implications of using HFS on Satisfaction and Students' Learning

The findings of this study represented the satisfaction of Saudi students in nursing regarding their learning with HFS based on the use of the six-point Likert scale. The range of scores that indicated participants agreed/strongly agreed that they were at satisfaction with their experience in the simulation was from 22/36 (61.67%) to 29/36 (80.56%) indicating that most of the nursing participants were satisfied with the

materials, methods of learning, and activities in HFS as such equipped them with proficient skills in the surgical and medical curriculum. The range of scores that indicated participants self-rated their level of self-confidence as they agreed/strongly agreed with their simulation experience was from 27/36 (75%) to 30/36 (83.33%). Also, the average mean for satisfaction was 3.71/5 (SD =1.16).

The findings further supported the literature and contributed to the literature. These findings are consistent with results that were conducted by Tutticci *et al.*, [11], Zapko *et al.*, [20], Lubbers *et al.*, [21] and Kinney *et al.*, [7], who encouraged nursing students to obtain an opportunity to demonstrate their knowledge and experience in a clinical setting by utilizing HFS. Findings also validated that the students were more self-confident and satisfied with the use of HFS [20, 11, 7, 21]. On the overall, the nursing students who trained using the simulation tools may have felt their skills were cultivated to help meet the actual needs of the patients and the workplace requirements, which generally increased their satisfaction in their training.

Discussion of the Impact of HFS on Self-Confidence

The average mean of the items of self-confidence was 3.81/5. (SD =1.14), which reflected the improvement of self-confidence in Saudi nursing students. Thomas *et al.*, [14] noted that simulation was a widely used technique to enhance and promote the self-efficacy and confidence of the nurses. It was further demonstrated that the use of simulation was increasing and can be utilized as an effective pedagogy to improve self-confidence, efficacy, and knowledge of clinical scenarios in students. Also, the findings from the study herein were congruent with [12-15] that found a positive implication of utilizing HFS labs on the self-confidence of nursing students. Also, two of these studies were conducted in Saudi supported the outcomes from the study herein by the use of HFS regarding improving self-confidence as well as self-efficacy [12, 14] where the self-confidence scores were high after students had gone through the simulation experience.

Saeid [13] examined the simulation experiences among forty-five students, "second years" studying for a diploma in nursing, and a widespread agreement that HFS was useful as well as a productive learning method. As a result, HFS helped to build the nursing students' self-confidence in the real working environment, indicating that most of the nursing participants were mostly satisfied regarding material, learning methods, and activities in the simulations as it formed as source of most of their skills [13]. The findings of increased self-confidence after HFS were also revealed in a quasi-experimental study done by Khalail [15]. In this study, the research made a comparison between the advanced practitioner nurse students who took part in the simulation experience and

those who during the event were in the control group based on their confidence scores. The result indicated that there was an overall increase in confidence in the two groups. Nonetheless, the control group had confidence scores higher than those from the group that took part in the simulation experience. Arguably, this could be attributed to the fact that unlike the students in the control group, the other group that took part in the simulation were required to demonstrate their skills and hands-on experience [15].

Recommendations for Future Research

Some weaknesses were identified while conducting this study, which included the small sample size that consisted of only 36 participants. The findings, therefore, cannot be generalized to Saudi's nursing students' population, as the accesses to the participants were limited. Due to the small sample size of the study along with the findings from the study, the recommendation for future research in several areas would be beneficial to achieve the highest expectation of utilizing the use of HFS labs more extensively. Since the current research emphasized and targeted only nurses who either have completed or currently in their nursing residency experience, further studies are recommended to generalize the population by increasing the number of the sample size as well as examine the longevity satisfactions of HFS outcomes. Also, exploring the perception as well as the satisfaction of first- and second-year nursing students would be beneficial to determine the performance and ability of the novice student nurses in terms of achieving clinical content. Moreover, since the current study examines only two concepts, which are satisfaction and self-confidence, further studies regarding the engagement between learners in different groups, as well as the integration between curricula and HFS would be essential. Finally, the examination of other learning outcomes such as motivation, clinical competence, critical thinking, and knowledge of learning should be evaluated with all levels of the nursing undergraduate program along with novice to advanced beginner.

CONCLUSION

The use of the HFS lab in nursing practice has proven its effectiveness in terms of students' learning. Also, in comparison to other teaching methods, students seem to prefer HFS based teaching as it increases their knowledge and confidence. The findings of the current study represented that most of the nurses who participated in the study were experiencing high satisfaction as well as self-confidence regarding their abilities in learning with HFS experience. The current study has also further confirmed that learning with HFS enhances novice nursing students' satisfaction and self-confidence. It is easier for student nurses to shift their focus to patient needs other than theirs if they have confidence. Such an ability would help them be competent and reliable practitioners. Also, simulation

fosters an environment through which the student nurses get to make their decisions as it would be in real-life situations. Besides, it aids the development of clinical judgment, promotes skills acquisition, and teaches students about complex clinical situations with real examples [2]. Clinical educators can help or create difficulties regarding their students' learning and self-efficacy [22]. HFS provides opportunities for clinical educators to be a positive role model. Also, there is a need for nursing educators to implement HFS in nursing curricula, where its integration can bridge the gap between theoretical knowledge and nursing practice [10]. The current study will help nurse educators in Saudi Arabia to improve and support Saudi nursing students by utilizing HFS as well as considering HFS as an essential part of clinical education as well as learning and teaching strategy.

REFERENCES

1. Bradshaw, M., & Hultquist, B. L. (2016). *Innovative teaching strategies in nursing and related health professions*. Jones & Bartlett Publishers.
2. Jessie, N., Warren, R., N. ... Lukewich, R., N., (2016). A systematic review of the effectiveness of simulation-based education on satisfaction and learning outcomes in nurse practitioner programs, *Nurse Education Today*, 46:99-108.
3. Parker, R. A., McNeill, J. A., Pelayo, L. W., Goei, K. A., Howard, J., & Gunter, M. D. (2011). Pediatric clinical simulation: A pilot project. *Journal of Nursing Education*, 50(2), 105-111.
4. Bandura, A. (1997). *Self-Efficacy: The Exercise of Control* (pp. 477). New York, NY, US: Worth Publishers.
5. Grusec, J. (1992). Social learning theory and developmental psychology, *Developmental psychology*, 28(5):776-786.
6. Lund, H., & Kempton, W. (2008). Integration of renewable energy into the transport and electricity sectors through V2G. *Energy policy*, 36(9), 3578-3587.
7. Kinney, S., & Henderson, D. (2008). Comparison of low fidelity simulation learning strategy with traditional lecture: *Clinical Simulation in Nursing*, 4:14-18.
8. Zapko, K., A., Ferranto, G., L., M., & Shelestak, D. (2018). Evaluating best educational practices, student satisfaction, and self-confidence in simulation: A descriptive study. *Nurse Education Today*, 68:28-34.
9. Lubbers, J., & Rossman, C. (2017). Satisfaction and Self-Confidence with Nursing Clinical Simulation: Novice Learners, Medium-Fidelity, and Community Settings, *Nurse Education Today*, 48:140-144.
10. Fawaz, M., A., & Mansour, A., M., H. (2016). Impact of high-fidelity simulation on the development of clinical judgment and motivation

- among Lebanese nursing students, *Nursing Education Today*, 46:32-42.
11. Tutticci, N., Coyer, F., Lewis, P. A., & Ryan, M. (2016). High fidelity simulation: Descriptive analysis of student learning styles. *Clinical Simulation in Nursing*, 12(11),511-521.
 12. Aboshiqah., A., E., Tumala., B., R., & Sileng., B., T. (2018). Perceptions of confidence among Saudi nursing interns during internship program: a cross-sectional study, *Annals of Saudi Medicine*, 38(4):288-298.
 13. Saeid, H. (2017). The Impact of Simulation on Pediatric Nursing Students' Knowledge, Self-efficacy, Satisfaction, and Confidence. *Journal of Education and Practice*, 8(11):96-102.
 14. Thomas. S., Nicholson., N., & Alazani., A. (2017). The Use of Simulation Training to Improve Knowledge, Skills, and Confidence Among Healthcare Students: A Systematic Review, *Internet Journal of applied health science and practice*, 15(3):2-9.
 15. Khalail, R. (2014). Simulation in Nursing Education: An Evaluation of Student's Outcomes at their First Clinical Practice Combined with Simulations, *Nurse Education Today*, 34:252-258.
 16. National League for Nursing. (2005). *Student satisfaction and self-confidence in learning*. Retrieved from http://www.nln.org/docs/default-source/default-document-library/instrument-2_satisfaction-and-self-confidence-in-learning.pdf?sfvrsn=0.
 17. Survey Monkey Brand Perception Survey. (2009). Survey Monkey. Retrieved from <https://www.surveymonkey.com/mp/aboutus/>.
 18. Ministry of Education. (2019). Retrieved from <https://departments.moe.gov.sa/PHE/UnivAndColl ageList/Pages/كليات-بريدة-الأهلية.aspx>.
 19. Burns, N., & Grove, S. (2013). *The practice of nursing research: Appraisal, synthesis, and generation of evidence* (7th ed). St. Louis: Saunders.
 20. Zapko-Willmes, A., & Kandler, C. (2017, November). Sources of homophobia towards gay men: a multi-rater twin study. In *BEHAVIOR GENETICS* (Vol. 47, No. 6, pp. 644-644). 233 SPRING ST, NEW YORK, NY 10013 USA: SPRINGER.
 21. Lubbers, J., & Rossman, C. (2016). The effects of pediatric community simulation experience on the self-confidence and satisfaction of baccalaureate nursing students: A quasi-experimental study. *Nurse Education Today*, 39, 93-98.
 22. Rowbotham, M., & Owen, R.. M. (2015). The Effect of Clinical Nursing Instructors on Student Self-Efficacy. *Nurse Education in Practice*, 15(6):561-566.