

Exploring the Satisfaction levels of Students after Their Simulation Experience

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Abstract

Nurses and other health professionals are increasingly using simulation, as a strategy and instrument for teaching and learning at all levels that need clinical training (Omer, 2016). In addition, simulation has been used as a vital aspect of nursing education for decades. Simulation increases nursing knowledge, clinical practice, critical thinking, communication skills, self-confidence, satisfaction, and clinical decision-making. Average satisfaction scores indicate that participants feel that the simulation's teaching techniques and approaches were effective. Nurses can be confident in recognizing disease signs and symptoms, acquiring the

knowledge required from simulation to perform tasks necessary in clinical practice, evolving skills required from simulation to perform essential tasks in clinical practice, and factors affecting the efficiency an individual with any abnormalities when they use simulation.

In this research, the quantitative method was used, using the questionnaire tool. A sample of 204 female nursing students between the ages of 20-21 years from King Saud University in the Kingdom of Saudi Arabia will be selected. Each student has completed at least one semester of clinical simulation (i.e. has real experience of simulation). The information will be entered into a statistical software package to get accurate results.

Keywords- simulation, satisfaction, nursing students

1. Introduction

Simulation has been regarded as an essential component of clinical teaching and learning strategies in nursing for many decades. It is used to simulate real-life circumstances so that students can obtain practical experience and build clinical nursing abilities. As well, simulation is an important aspect of the day-to-day learning process in the health sciences. Many simulation models are used in nursing education, and the clinical environment can be simulated using a variety of simulation models such as full-body models, task trainers, simulated patients, standard simulations, virtual or computer-generated simulations, or

hybrid simulations, which are a combination of several model simulation techniques that can be used to facilitate learning (Omer, 2016).

Mohamed (2019) asserted that, varieties of causes are propelling the greater use of simulation in nursing and health professional education. Patient safety concerns, such as simulation, enable healthcare practitioners to develop the required skills and expertise to protect patient safety. Clinical simulation is required by education states to ensure learners have a suitable clinical foundation and to support the transition from student to clinical leader. As well, clinical simulation is defined as "an effort to mimic some or almost all of the main characteristics of a clinical situation in order for the issue to be more readily comprehended and treated when it occurs in clinical practice for real."

Instead than waiting for unusual and rare occurrences to occur in real-life settings, simulation exposes learners to genuine clinical scenarios in a virtual classroom. As well, according to studies, simulation has various advantages for health care providers. It enhances clinical nursing practice, nursing knowledge and critical analysis, effective communication, consciousness and satisfaction, and treatment planning (Kaliyaperumal, 2021).

According to Winum (2017), simulation is widely used in health science education and is recognized as an educational approach as well as a tool that provides patient safety. Aside from that, research suggests that practicing in groups focused on the patient, cooperation, and conflict

resolution improves, increases, and encourages patient care. Some studies examine nursing students' attitudes toward the use of clinical simulation as teaching approaches, thus, underlining the significance of the continuous study in this research. As a result, it was stated that evaluating simulation learning outcomes and their impact on actual health care outcomes remains a difficulty as well as further study is needed to analyze simulation-learning outcomes.

2. Research Problem

Simulation has been recognized as an inevitable part of clinical teaching and learning methods in nursing for decades. It is used to imitate real-life situations so that students can get experience and improve their clinical nursing skills. Besides, varieties of causes are driving the increased use of simulation in nursing and health professional education. Healthcare quality challenges, such as simulation, enable health care practitioners to gain the skills and experience required to protect medication satisfaction (Omer, 2016). Clinical simulation is necessary in educational purposes to ensure that students have an important clinical framework and to make the transition from student to professional practitioner as easy as possible. Thus, according research, simulation has numerous advantage for health care professionals since it enhances nursing clinical practice. Students must complete a curriculum that includes simulation practice in medical disciplines. Because of the relevance of the clinical

simulation experience, diagnosing students' attitudes and levels of satisfaction is essential. Several research have revealed that the levels of student satisfaction during the clinical simulation experience differ (Kaliyaperumal, 2021).

Winum (2017) confirmed that, patient simulators were previously frequently utilized for teaching at anesthetic schools, and today some undergraduate nursing programs supplement the learning experiences earned in hospitals with simulation experiences. Patient simulation programs help students to practice these abilities because hospitals anticipate graduate nurses to have more advanced skills due to rising patient acuity and technology. However, there has been little research on the use of patient simulation in nursing programs, particularly on students' opinions of their patient simulation experiences.

Because simulation is a frequently utilized approach for teaching clinical skills to nursing students, the goal of this study was to investigate students' satisfaction levels after a minimum of one semester simulation experience in a College of Nursing.

3. Research Questions

Many questions occur in the preconceptions that are found and others who are crucial in the satisfaction levels of students after their

simulation experience. As a result, the following are the study's questions, which clarify what this research aimed to answer:

- A. How different are nursing students' levels of satisfaction and confidence in learning the clinical simulation experience?
- B. What are the interrelationships between satisfaction, self-confidence, and demographic characteristics of Nursing students?
- C. How does the simulation experience affect students' confidence and ability to diagnose a disease condition?
- D. How does the simulation experience affect patient protection?

4. Aim and Objective

This study is primarily concerned with determining the level of satisfaction of nursing students after clinical simulation experience. While the primary goals of the research are as follows:

- Investigate the varying levels of satisfaction and confidence that nursing students have in studying the clinical simulation experience.
- elucidate the interrelationships between nursing students' contentment, self-confidence, and demographic aspects
- Examine how the simulation experience affected students' confidence and abilities to diagnose a clinical condition.
- Adjust the simulation's influence on patient protection.

5. Research Significance

Nurses and other health professionals are increasingly using simulation as a strategy and instrument for teaching and learning at all levels that need clinical training. As nursing and other health professional curricula face issues due to insufficient clinical learning opportunities, simulation is viewed as a viable option to substitute some real-life clinical exposure hours. Clinical simulation is viewed as an attempt to recreate some or almost all of the main components of a clinical event in order to better comprehend and manage the issue when it occurs in clinical practice (Omer, 2016).

Due to the scarcity of studies that investigate and assess nursing students' satisfaction levels after simulation experiences, this study is relevant in terms of offering a deep cognitive aspect. Because some critics claim that simulated learning is an unsatisfactory technique of teaching clinical skills to nursing students, this research meets a need to investigate the benefits of simulated practice as an effective approach of boosting the development of clinical abilities in nursing students. Furthermore, the massive development of human patient simulation has encouraged policymakers and teaching professionals to use it as a clinical teaching tool by simulating clinical contexts that promote nursing students' satisfaction in learning while causing no harm or risk to real patients because all experiences are conducted in artificial settings.

It is worth noting that simulation has significant consequences for nursing practice by identifying and modeling the various clinical processes used to preserve a patient's life in critical situations and to detect indicators of deterioration in a patient's health state (Raniere, 2020). This is due to the fact that nursing graduates are not exposed to all of these circumstances during their training. From another perspective, simulation experiences serve to boost nursing students' self-confidence in learning while also decreasing medical blunders in how to behave in various clinical case scenarios (Winum, 2017).

Practically, this encourages nursing students to engage in interactive learning experiences. As a result, this research will aid in meeting educational needs as well as the growing expectations of healthcare systems. Additionally, simulation experiences help nursing students improve their self-confidence in learning and reduce medical errors related to behavior in various clinical case scenarios.

6. Background

This section discusses the study's theoretical literature as well as what differentiates the current study from others in terms of the simulation experience and the level of satisfaction of nursing students after the simulation experience.

6.1 Simulation Experience

Simulations in medical education and training might take place in classrooms, situational contexts, or venues specifically intended for simulation. It can incorporate artificial or human models, or a combination of the two, and injuries can be examined using 3D holographic simulation in homeland security and military circumstances, emergency services, and virtual health support activities. Its primary goal in the past was to train medical professionals in order to reduce errors during surgery, medication, crisis intervention, and general practice. They are being utilized to train students in addition to debriefing approaches in anatomy, physiology, and communication (Baptista, 2017).

Jamie (2019) explained that, anesthesiologists were the first to employ modern simulation training to reduce mishaps. When the Link training device for aerospace and military purposes was invented in the 1930s, simulation became popular. The simulation was then modified to meet the requirements of diverse field experts. Because of technological limitations and general medical knowledge at the time, medical simulation was not deemed an acceptable way of training until much later.

When the cost-effectiveness and ability of simulation to conduct training in extensive military use became apparent, hardware and software technology expanded dramatically, medical standards were established,

and medical simulation became fully possible and affordable, despite the fact that it was not widely accepted by the large medical community (Kaliyaperumal, 2021).

During the board's oral examinations, the American Board of Emergency Medicine now use medical simulation technology to correctly assess students' levels by employing 'patient scenarios.' These simulations, however, are very different from the rising simulations that have evolved since the 1990. Then, because computer simulation technology in terms of flight simulation and military simulation is still relatively new, there is still a lot of research to be done to find the best way to approach medical training through simulation, which is still not standardized despite being universally accepted and embraced by a growing medical community. However, significant progress is being made in medical education and training. Despite the fact that a number of studies have demonstrated that students who are trained using medical simulators had greater grades and retention rates than those who are instructed using traditional methods (Ma, 2013).

Medical schools and teaching hospitals are the two main types of medical institutions that use medical simulation to train patients. According to the findings of a survey done by the Association of American Medical Colleges, simulation content is taught in medical schools for four academic years, while hospitals use simulations in training and specialty. Medicine, emergency departments, pediatrics,

gynecology, psychiatry, surgeries, and anesthesia are just a few of the topics covered in medical schools and hospitals (Winum, 2017).

According to the Association of American Medical Colleges, there are six major categories of simulation centers: facility site, centralized and decentralized units, mobile units, and so on, or a small combination of centralized and decentralized, centralized and mobile. The majority of clinical skills and simulation centers are linked with medical facilities, with nearly two - thirds associated with medical schools while more than 89% affiliated with teaching hospitals. The majority of simulation centers are centrally positioned, with more that 70% for medical schools and approximately 58% for teaching hospitals (Baptista, 2017).

Well-known medical schools' Clinical Skills and Simulation Center facilities include debriefing scenario rooms, conventional clinical areas rooms, a partial mission trainer, offices, a monitoring space, a control room, a class, and storeroom. Clinical Skills and Simulation Centers at medical schools often feature more than 20 specialized simulation training rooms (Ma, 2013).

Medical simulation is a learning process that takes place in a clinical practice. The primary features of the simulation center's design are the building's shape, the layout of the rooms, and the technology used. A realistic setting must be built to reduce trainees' worries during simulation scenarios. The environment may include extraneous elements put into simulation activities, but it plays a significant role in patient safety. For instance, several studies demonstrate that patient falls and

injuries frequently occur in hospital bathrooms, hence the simulation rooms include restroom areas. A simulation facility must be within 10-minute walk of the medical professionals who will use it in order to be successful (Omer, 2016).

Clinical and medical professors are frequently in charge of running simulation centers on a daily basis. However, medical simulation technology has become complicated, necessitating the services of specialists. The Healthcare Simulation Specialist certification was developed by the Society for Healthcare Simulations in 2014. The purpose of this certification is to define and document the minimum capabilities exhibited by simulation center operations personnel (Mohamed1, 2019).

Experiential learning, which is founded on the work of great scholars such as John Dewey, Jean Piaget, Carl Rogers, and others, helps to support simulation-based learning. Experiential learning theory, sometimes known as "learning by doing" or "experience theory" in general, holds that experience plays a significant role in human learning and growth. Experiential learning theory's six principles are aligned with educational simulation (Winum, 2017). These are the guidelines:

- ❖ Engage learners in a technique that will improve their learning. This includes "insight into the effectiveness of their teaching efforts," as well as an emphasis on the process rather than the result.

- ❖ Students have predetermined notions and assumptions. The process of extracting these beliefs and ideas with the intention of re-examining and retesting them in a specific area in order to incorporate new concepts will result in learning.
- ❖ Learning is a process that alternates between meditation, practice, emotion, and thought. “Conflict, differences, and disagreements drive the learning process”; it is the analysis of these things that leads to learning.
- ❖ Learning happens because of interactions between a person and his surroundings.
- ❖ Knowing is only one aspect of learning. It consists of thought, experiencing, detecting, and acting.
- ❖ The materialist philosophy underpins learning. “Learning is the process by which knowledge is created.”

6.2 The Satisfaction Levels of Nursing Students after Their Simulation Experience

Nursing students must learn a lot about patient care during their educational experiences, and many of these experiences are based on the types of patients they care for in units during their practical courses (Omer, 2016). Patient simulators are currently employed in several nursing curricula. Patient simulators are computer-powered models with high resolution that may be designed to imitate physiological changes in the cardiovascular, pulmonary, metabolic, and neural systems as heart sounds, breathing, and chest movement change. Simulators enable students to manage simulated drugs with suitable physiological effects, and they can also be coded to react physiologically in the same way that a real person would react to a similar disease or illness, such as low blood pressure and elevated heart rate in the presence of blood loss or shock. Teachers can use a patient simulator to present students with a variety of patient concerns and guarantee that they have the opportunity to learn effective care. A patient simulation experience mixed with clinical practice experiences helps prepare students for a nursing career (Kaliyaperumal, 2021).

Students with simulator experiences were expected to: (1) rate the patient simulator experience as believable and beneficial, with skills conveying comfortably into clinical situations; (2) remain comfortable in their nursing skills; (3) feel relaxed in clinical settings; (4) know the role

of nurses; and (5) obtain a fairer clinical knowledge of the issues (Winum, 2017).

Raniere (2020) asserted patient simulators are utilized at various stages of nursing education. Students participating in simulation experiences have the choice of learning in a risk-free setting, participating in student engagement, skills acquisition, and receiving rapid feedback from a faculty or teacher. However, having experience with the HPS boosted student knowledge, skill, and confidence in medicine administration. Furthermore, as compared to students who do not have the experience, those who have used the patient simulator demonstrate greater autonomy and self-confidence. Finally, nursing students felt that the simulations were realistic and beneficial, according to a student satisfaction survey developed through a literature analysis to determine critical components of simulation.

7. Research Methodology

This study attempts to achieve the study's aims and provide answers to its questions. Research will be conducted in the Kingdom of Saudi Arabia during the academic year (2016-2017). In addition, a sample of 204 female student nurses answered questionnaires to investigate nursing students' satisfaction levels following their laboratory simulation experience of at least one semester in a College of Nursing. This sample

will be chosen with care in order to obtain the most accurate and realistic information about the subject of the study.

As a result, the researcher will use questionnaires to do a quantitative study. A contextual analysis tool will be used to gather more accurate data when assessing the study's results. During interviews, all pertinent information will be gathered by taking notes. Finally, the study's findings will be examined in order to determine students' degrees of satisfaction following their simulation experience.

7.1 Data Collection and Management

A cross-sectional quantitative descriptive correlational design was used for this study. Validated and reliable survey instruments, in the form of questionnaires were used to explore the satisfaction levels of nursing students after at least one semester of laboratory simulation experience in King Saud University (KSU). Convenience sampling was used to recruit 280 grade 3 nursing students, of which 204 nursing students completed the questionnaire, providing a response rate of 62.5%.

A self-report procedure including the completion of questionnaires was used. The structured questionnaire was divided into three sections.

Part one solicited socio-demographic information, such as age, stream, and course. The researcher created this section to investigate the interconnections between demographic factors, contentment, and self-confidence.

The second part contained a 23-item satisfaction scale that assessed students' contentment and self-confidence following the simulation experience. Items were also developed from a multidimensional tool for assessing nursing students' academic satisfaction. The satisfaction part of the questionnaire utilized in this study was developed using only a clinical instruction subscale.

7.2 Sample and Method

To participate, all 204 female bachelor students in the first medical surgical nursing course to use a patient simulator in a laboratory setting were invited. The research topic was explained to the students at the beginning of the semester, and they were assured that their decision to participate or not participate in the study would have no effect on their marks. Seventeen nursing students consented to take part in the research. Demographic information is provided in its entirety. The sample included almost entirely of girls, with an average age of 21 years. On a 4-point scale, the self-reported grade point average was 3.8. The majority of the participants had finished one semester of a nursing

program. One of the student nurses has prior expertise with the patient simulator. Students used the patient simulator for five, one-hour sessions. Each session had four students, one registered nurse who organized and directed the session, and a research assistant who advanced the situation and acted out the patient and medical professionals.

The room and patient simulator were built up to be as accurate as possible during the sessions, with patients suffering from congestive heart failure, myocardial infarction, traumatic brain damage, diabetic ketoacidosis, and gastrointestinal hemorrhage. Students were provided information about the scenario they would be working on two weeks in advance so that they may prepare and study about the condition before experiencing it. When the students arrived for their session, they were all given a nurses' report on the patient's condition and then assigned a team leader who divided up the work among the students. The team leader was handed the patient's chart, and the students worked together to care for the patient by evaluating, diagnosing, organizing, and providing treatment plan, as well as evaluating and updating the plan as needed. The students were able to see the cardiac monitor, which displayed the heart rate, blood pressure, respiration rate, temperature, and oxygen saturation.

Students were also provided a chart with the health care provider's orders as well as the patient's values. Students could evaluate respiration and heart rates, breathing rate, and peripheral pulses, as well as initiate

intravenous catheters and provide intravenous fluids, deliver drugs, suction, evaluate the urine catheter, and implant Nano-gastric tubes. The students talked to the patient and interacted with medical staff as they cared for their patient, and the registered nurse posed thought-provoking questions, led the conversation, and answered questions as they went through the scenario. The teaching assistant role acted out the patient's answer as well as the replies of other members of the health care team as suitable to the scenario. Students were fully briefed at the end of the session on what occurred, what was handled well, and what could have been done better.

Following the completion of the five sessions, those students who agreed to participate in the study signed an informed consent form and performed the research instrument to examine their views. The information was entered into a statistical software package. Finally, the instrument's reliability estimations and descriptive statistical analyses, including means and frequencies, were computed.

7.3 Instrument

A 19-item student satisfaction survey employed a 4-point Likert scale to evaluate the amount to which participants agreed with the items (1 =Strongly Disagree, 2=Disagree, 3 =Agree, and 4=Strongly Agree). The instrument is divided into three subscales: realism (n=3), transferability (n=3), and value (n =6). The realism rating scale included items like, 'the

scenario employed with the patient simulator recreates real-life scenarios.'

The survey employed seven additional individual items relevant to the patient simulation experience itself, such as "My engagement with the patient simulator improved my clinical competence." The value to learning was measured using items such as "As a whole, the simulator experience boosted my learning."

7.4 Findings

The most of nursing female students were between the ages of (20-21). The findings revealed that the GPA of the majority of nursing students was high, indicating good performance. The students were generally pleased with their simulation clinical experience (m= 3.41 to 3.64). This revealed that simulation is an excellent technique for clinical teaching, leading to the progression and promotion of nursing students' learning experiences. According to the findings, clinical instructors were friendly and knowledgeable, and they helped students feel comfortable asking questions. As indicated by an arithmetic average (3.41) and a standard deviation (.846) the training approaches used in this simulation were beneficial and successful.

8. Research Limitation

The study had a significant limitation, which was "human limitation." Where it is clear that the beginning, the research sample is small, as it only includes the perspectives of nursing students at King Saud University. Accordingly, the study's generalizability may be limited due to the study's targeted group. Therefore, it is critical to increase the size of the research sample in order to collect more comprehensive and accurate data. Furthermore, the study was limited to female nurses, not males, implying that their perspective is limited. Males' perspectives typically differ from those of females, which may contribute to a shift in the research's findings. As a result, the researchers are urged to test the theories on male nursing students as well.

9. Conclusion and Recommendations

Simulation as approach and method for teaching and learning at all levels requiring clinical training is increasingly employed by nurses and other health professionals. Furthermore, simulation has been used for decades as a key element in nursing education. The use of patient simulators in nursing is an interesting and beneficial approach for students to benefit from decision-making capabilities, technical skills, confidence levels, the preparation of real - life conditions and the improvement of classroom instruction.

Generally, these nursing students regarded the experience to be beneficial to their learning and decision-making abilities. Responders rated the transferability, realism, and utility of the patient simulation experience highly. The pace of the simulator experience, on the other hand, could be sped up by finding a technique to simulate the passage of time encountered in a medical setting. Furthermore, the value could be increased by providing students with more feedback on their performance with the patient simulator.

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