Experiences of Clinical Simulation and Nursing Students' Self-Confidence

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Abstract

Background: Clinical simulation effectively bridge the gap between theoretical knowledge acquired in the classroom and real-world clinical practice, helping nursing students to have sufficient knowledge and practical skills before beginning clinical practice as well as foster their self-confidence. **Aim of the Study:** To assess experiences of clinical simulation and nursing students' self- confidence. **Design:** Descriptive correlational study design was applied. **Setting:** The study was conducted in Faculty of Nursing at Tanta University. **Subjects:** included (N=413) of nursing students were enrolled in second academic year and (N=406) of nursing students were enrolled in the third academic year. **Tools:** Two tools for data collection were used, Clinical Simulation Experience Design Structured Questionnaire and Nursing Students' Self- Confidence with Clinical Simulation Experience Structured Questionnaire. **Results:** Around half (47.3%) of the nursing students had a high level of experience with clinical simulation design. More than half (58.2%) of the nursing students had a high level of overall score for self- confidence with clinical simulation experience. **Conclusion;** There was a positive statistically significant correlation between nursing students' experience with clinical simulation and their confidence with clinical simulation experience. **Recommendation:** Faculty management enhance nursing student's knowledge and skills about how to use clinical simulation sessions through workshops and training programs and ensure the availability of all necessary technologies aids.

Keywords: Clinical simulation, Experience of clinical simulation, Nursing students, Self- confidence.

Introduction

Graduating nurses must have the requisite knowledge and skills since they are the first line of defense when it comes to patient care. The results of any training or educational endeavor could be affected by the fact that nursing students are individual beings with diverse methods of processing knowledge **(Ongor & Uslusoy, 2023).** Teaching future nurses the skills they'll need to practice at a professional level is the major focus of clinical nursing education programs. One of the most widely used methods of instruction in nursing schools, clinical simulation effectively bridges the gap between theoretical knowledge acquired in the classroom and real-world clinical practice, allowing students to engage in authentic and replicated clinical situation. Using technology, students make independent decisions and see the consequences of their actions without causing harm to real patients and helps students learn new material and improves their outlook on hands-on training **(Alshehri, Jones, & Harrison, 2023).** Nursing students may get valuable experience via clinical simulation, where they can practice repeated procedures in a controlled setting and make errors without endangering patients **((Dönmez, Alıcı, Kapucu, & Elçin, 2023).** Students' self-awareness, in-depth reflection, and nursing competency are all enhanced by clinical simulation training as part of clinical practice. Therefore, it is essential that nursing students have a solid foundation in both practical nursing skills and clinical simulation from the start of their education **(Lockertsen et al., 2023).**

Recognizing the components of simulation design may give subsidies for the development of more assertive simulation-based experiences (SBE) in nursing, which is important since simulation design can affect improved learning outcomes **(Oliveria Silva et al., 2023).** There are five parts to a clinical simulation design framework: objectives / information, support, problem solving, feedback and fidelity. Objectives/ information, is a comprehensive and clear understanding of the purpose and objective of simulation. Support which mean nursing students' feeling supported by the instructor assistance during the simulation. Problem solving skills which provide nursing students with the opportunity to set goal for patient (**Jeffries, 2020).** Feedback is the most important part of good simulations, and guided reflection is a part of debriefing. Thinking critically about one's experiences is essential for building knowledge. How realistic the virtual world is exactly what we mean when we talk about fidelity **(Cho & Kim, 2023).** Nursing students may hone their psychomotor, emotional, social,

and cerebral abilities via clinical simulations, which allow them to practice nursing tasks until they achieve mastery. In addition, nursing students may conquer their fears and anxieties and build their talents and self-confidence via clinical simulations **(Salifu, Christmals, & Reitsma, 2022).** Self-confidence in clinical simulation encompasses three critical domains: learners' confidence in their own abilities, confidence in the skills and knowledge of trainers or instructors, and confidence in the clinical simulation itself. The success of the training as a whole depends on each of these factors, which in turn affect the growth and development of the nursing students (**Jeffries, 2020).** Learners must have faith in their own talents for clinical simulations to be successful. How well nursing students do in clinical settings is strongly related to how confident they feel in themselves. Having faith in one's own skills, knowledge, and judgments is a sign of being confident in one's capacity to achieve objectives, finish jobs, and overcome obstacles **(Rashwan, 2023).**

The atmosphere of a classroom is greatly affected by the level of confidence that students have in their trainers or instructors. The training process is more likely to be trusted by nursing students when they see their instructor as competent, skilled, and helpful. Because of the established level of trust, students are more comfortable speaking up and asking for clarification when they need it. Building a solid relationship between instructors and nursing students enhances the learning process and gives students the confidence to put their knowledge into practice **(Alharbi and Alharbi, 2022).** Finally, confidence in the clinical simulation itself is crucial for successful training outcomes. The likelihood of nursing students actively participating in a simulation increases when they have faith that it is reflective of real-world situations and has been developed with principles of effective learning in mind **(Alrashidi et al., 2023).**

Significance of the study:

Nursing students in the critical care, medical surgical, maternity, and pediatric specialties (those in their second and third years of study) benefit greatly from clinical simulation as a teaching tool at Tanta University's Faculty of Nursing. The gap between theory and practice may be filled with high-quality simulations that include realistic settings, sufficient technology, and pertinent clinical difficulties. Instructors may help students feel more comfortable in the simulation, which might increase their readiness to handle the complexity of real world clinical settings and ultimately contribute to better patient care and results (**Alrashidi et al., 2023).**

In addition, the ability of nursing students to acquire new skills, solve problems, communicate professionally, and think critically is all negatively impacted by their lack of self-confidence when it comes to clinical simulation. This, in turn, affects the quality of care that patients receive. So, this study aimed at assess experiences of clinical simulation and nursing students' self-confidence.

Aim of the Study

Assess experiences of clinical simulation and nursing students' self-confidence.

Research questions:

1. What are the levels of nursing students' experience with clinical simulation?
2. What are the nursing students' self-confidence levels with clinical simulation experience?
3. What is the relation between experiences of clinical simulation and nursing students' self-confidence?

Research design:

A descriptive correlation study design was used in this study.

Setting:

The present study was conducted at the Faculty of Nursing, Tanta University. The faculty began its educational mission under the name of the higher institution of nursing at 1982/ 1983 then converted officially to Faculty of Nursing at 29/4/2000 and added it to the faculties of nursing in Egypt and the faculty is affiliated to the Ministry of Higher Education and Scientific Research. The faculty had a certificate of accreditation from the National Authority for Education Quality Assurance and Accreditation in 2019 and have renewed the accreditation in 2025, it contains seven departments namely Nursing Administration, Medical-Surgical Nursing, Critical care and Emergency Nursing, Community Health nursing, Pediatric Nursing, Maternal and Newborn Health Nursing and Psychiatric and Mental Health Nursing.

Subjects: -

The study subjects included a convenience sample (819) of second and third nursing students in the academic year 2023-2024 who accepted to participate in the study, male and female students.

Tools of data collection

Three tools were utilized for the collection of data:

Tool I: Clinical Simulation Experience Design Structured Questionnaire**:** This tool was developed by the researcher and guided by **Omer (2016), Magnetico (2017) and Jeffries (2020).** It was used to assess nursing students' experience with clinical simulation design. it included two parts as follow:

Part (1): Part 1: Personal and studying related data of nursing students: This part included; age, gender, academic year, place of

residence, working during studying years, previous academic achievement, clinical simulation (course), how many courses and the place of clinical simulation.

Part (2): Clinical Simulation Experience Design Structured Questionnaire:

This part included 30 items divided into the following dimensions: - Objectives and information: included 6 items - Student support: included 7 items. - Problem solving skills: included 6 items - Feedback /Guided Reflection: included 7 items - Fidelity (Realism): included 4 items.

Scoring system:

Nursing students' responses were measured on a five points Likert Scale ranging from (1-5) where strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). They were concluded into 3 points where strongly agree and agree = agree and strongly disagree and disagree = disagree. **The total scores were calculated and summing up scores of all categories based on statistically cut-off points as the following:**

- High experience level with clinical simulation > 75 %
- Moderate experience level with clinical simulation 60 – 75 %
- Low experience level with clinical simulation < 60 %

Tool (II): Nursing Students' Self-Confidence with Clinical Simulation Experience Structured Questionnaire It was developed by the researcher guided by **Omer (2016), Magnetico (2017) and Souza et al., (2020).** It was used to assess nursing students' self-confidence with clinical simulation experience. It included 20 items divided into the following dimensions: - Self-confidence in learners' abilities: included 6 items - Confidence in trainers or instructors' skills and knowledge: included 6 items - Confidence in the used clinical simulation: included 6 items.

Scoring system

Nursing students' responses were measured on a five points Likert Scale ranging from (1-5) where strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). They were concluded into 3 points where strongly agree and agree = agree and strongly disagree and disagree = disagree. **The total scores were calculated and summing up scores of all categories based on statistically cut-off points as the following:** High level of Self-confidence > 75%

- Moderate level of Self-confidence 60 – 75 %
- Low level Self-confidence < 60 %

Method

1-Official permission to conduct the study was obtained from dean of faculty to responsible authority of Faculty of Nursing, Tanta university

2- Ethical consideration:

a- Approval of the Faculty of Nursing Scientific Research Ethical Committee was obtained No. **(388-2-2024).**

b- Nature of the study did not cause any harm or pain to the nursing students

c- The researcher introduced herself to the participant, a full explanation of the aim and method of the study was done to obtain the acceptance and cooperation as well as their informed consent.

d- The right to terminate participation at any time was accepted.

e-A code number was used instead of names.

3- Tools of the study were developed by researcher based on related literatures and translated into Arabic language.

- The face validity value of Clinical Simulation Experience Design Structure Questionnaire was 96.3 and Nursing Students' Self-Confidence with Clinical Simulation Experience Structure Questionnaire was 98.3%

4- A pilot study was conducted on 10% of the nurses (82 nursing students) to test clarity, sequence of items, applicability, relevance of the questions and to determine the needed time to complete the questionnaire

5- Reliability of tools was tested using Cronbach's Alpha Coefficient test. Reliability of clinical simulation experience design structure questionnaire was= 0.963 and reliability of nursing students' self-confidence with clinical simulation experience structure questionnaire was 0.957

6- Data collection phase: Data collected by the researcher. The researcher met nursing students in small groups after their class to distribute the tool 1 and tool II. The questionnaires were completed at the presence of the researcher to ascertain all questions were answered.

7- The data was collected over a period of three months during the academic year 2024-2025 started from the beginning of October 2024 until the end of December 2024.

8- The estimated time needed to complete the questionnaire items from subjects for both tools was 20 up to 30 minutes.

Statistical analysis:

The statistical analysis of the data was performed using IBM SPSS software version 20.0 (Armonk, NY: IBM Corp, released 2011). Categorical data were summarized as numbers and percentages. For continuous data, normality was assessed using the Kolmogorov-Smirnov test. Quantitative data were described using range (minimum and maximum), mean and standard deviation. Significance of the obtained results was judged at the 5% level. The correlation between two normally distributed quantitative variables was calculated using

Pearson's correlation coefficient. The Student T-test was used for comparing between two studied categories. While, F-test (ANOVA) was used for comparing between more than two categories.

Results

Table (1): Illustrates personal and studying related data of nursing students. It was found that relatively two-thirds (66.7) of nursing students were less than or equal to 20 years old with mean age scores 20.16 ± .76. As well as, more than two thirds (67.2%) of nursing students were female. In addition, more than half (50.4%) of the nursing students were from second year and 57.6% of them were from rural area.

Table (2): display mean scores, standard deviation and rank of clinical simulation experience design dimensions' scores among nursing students. As noticed, objectives and information was ranked as the highest dimension of clinical simulation experience design with mean scores 24.09 ± 3.83, followed by feedback/guided reflection with mean scores 28.10 ± 4.54. While, support during clinical simulation dimension was ranked as the lowest dimension of clinical simulation experience design with mean scores 26.79 ± 5.04.

Figure (1): explain levels of nursing students' experience with overall clinical simulation design (n = 819) It indicates that around half (47.3%) of the nursing students had a high level of experience with clinical simulation design and about one third (33%) had a moderate level. While, 19.8% of them had a low level experience with clinical simulation design.

Table (3): indicates mean scores, standard deviation and rank of self-confidence' score with clinical simulation experience among nursing students. As observed from this table, confidence in learner's abilities dimension was ranked as the highest dimension with mean scores 49.07 ± 6.62, followed by confidence in Instructors' skills and knowledge dimension with mean scores 16.24 ± 2.67. While, confidence in clinical simulation dimension was ranked as the lowest dimension with mean scores 16.13 ± 2.85.

Figure (2): Explains Levels of the nursing students' overall self-confidence with clinical simulation experience (n = 819)

It indicates that more than half (58.2%) of the nursing students had a high level of overall for self-confidence with clinical simulation experience. While, only 11.7% had a low level of overall score for self-confidence with clinical simulation experience.

Table (4): reveals correlation between nursing students' experience with clinical simulation design and their self-confidence with clinical simulation dimensions. It was evident that there was a statistically

significant correlation between all dimensions of nursing students' experience with clinical simulation design and their self-confidence with clinical simulation experience where $p \leq 0.001$.

Table (5): illustrate correlation between nursing students' experience with clinical simulation design and their self-confidence with clinical simulation experience. This table shows that, a positive statistically significant correlation was found among Nursing students' experience with clinical simulation and their confidence with clinical simulation experience ($r = 0.813$) at ($p < 0.001$).

Table (6): exhibits relation between total score of nursing students' experience with clinical simulation design and personal data. It demonstrated that there was statistically significant relation between total score of clinical simulation experience design and all personal data except age (years), academic year, place of residence and working during studying years.

Table (7): exhibits relation between total score of nursing students' self-confidence with clinical simulation experience and personal data. It demonstrated that there was statistically significant relation between total score of nursing students' self-confidence with clinical simulation experience and all personal data except age (years), academic year, previous achievement working during studying years, medical surgical and pediatric courses.

Table (1): Personal and studying related data of nursing students (n = 819)

Part 1: Personal data	No.	%
Age (years)		
≤20	546	66.7
>20	273	33.3
Gender		
Male	269	32.8
Female	550	67.2
Min. – Max.	18.0 – 22.0	
Mean ± SD.	20.16 ± 0.76	
Academic year		
Second	413	50.4
Third	406	49.6
Place of residence		
Urban	347	42.4
Rural	472	57.6
Working during studying years		
No	450	54.9
Yes	369	45.1
Previous academic achievement		
Excellent	511	62.4
Very good	250	30.5
Good	50	6.1
Satisfactory	8	1.0
Clinical simulation course		
Critical care nursing	202	24.7
Medical surgical nursing	413	50.4
Maternity and obstetric nursing	202	24.7
Pediatric nursing	204	24.9
How many courses		
1	413	50.4
2	204	24.9
3	202	24.7
Place of simulation		
Satisfactory	675	82.4
Unsatisfactory	144	17.6

SD: **Standard deviation**

Nursing students have critical care nursing course and maternity and obstetric nursing course at the same semester

Table (2): Mean scores, standard deviation and rank of clinical simulation experience design dimensions' scores among nursing students (N = 819)

Clinical simulation experience design dimensions	Score Range	Total score		Average Score (1 – 5)	Rank
		Min. – Max.	Mean ± SD.	Mean ± SD.	
- Objectives and Information	(6 - 30)	13.0 – 30.0	24.09 ± 3.83	a. 0.64	1
- Support during clinical simulation	(7 - 35)	11.0 – 35.0	26.79 ± 5.04	a. 0.72	5
- Problem solving skills	(6 - 30)	12.0 – 30.0	23.13 ± 3.98	3.86 ± 0.66	4
- Feedback/Guided Reflection	(7 - 35)	11.0 – 35.0	28.10 ± 4.54	4.01 ± 0.65	2
- Fidelity (Realism)	(4 - 20)	4.0 – 20.0	15.81 ± 2.85	3.95 ± 0.71	3
- Overall Clinical simulation experience design structured	(30-150)	68.0 – 150.0	117.93 ± 18.26	3.93 ± 0.61	

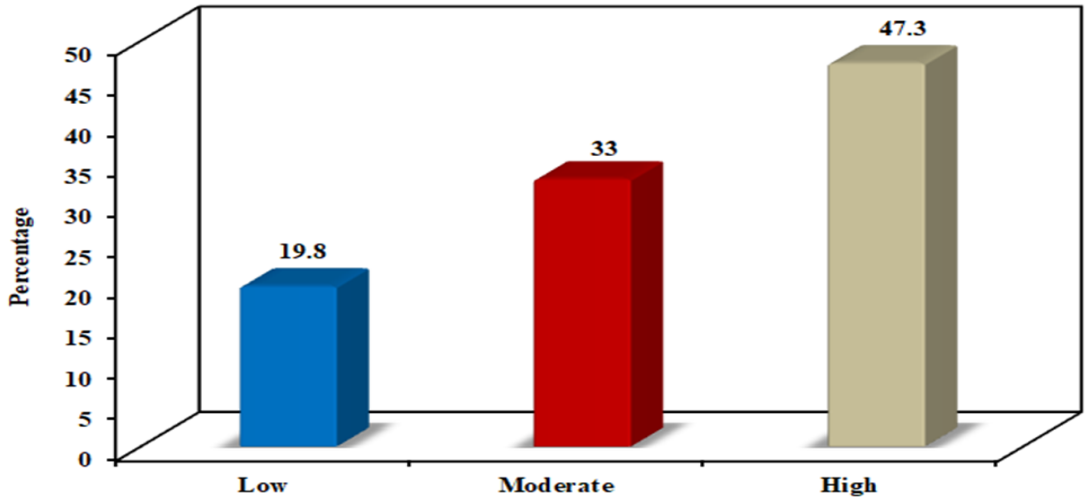

Figure (1): Levels of nursing students' experience with overall clinical simulation design (n=819)

Table (3): Mean scores, standard deviation and rank of self-confidence' score with clinical simulation experience dimensions among nursing students (n:819)

Nursing students' self-confidence with clinical simulation experience structured	Score Range	Total score		Average Score (1 – 5)	Rank
		Min. – Max.	Mean ± SD.	Mean ± SD.	
- Confidence in learner's abilities	(12 - 60)	31.0 – 60.0	49.07 ± 6.62	• 0.55	1
- Confidence in Instructors' skills and knowledge	(4 - 20)	7.0 – 20.0	16.24 ± 2.67	4.06 ± 0.67	2
- Confidence in clinical simulation	(4 - 20)	7.0 – 20.0	16.13 ± 2.85	4.03 ± 0.71	3
Overall Nursing students' self-confidence with clinical simulation experience	20-100	48.0 – 100.0	81.45 ± 11.18	4.07 ± 0.56	

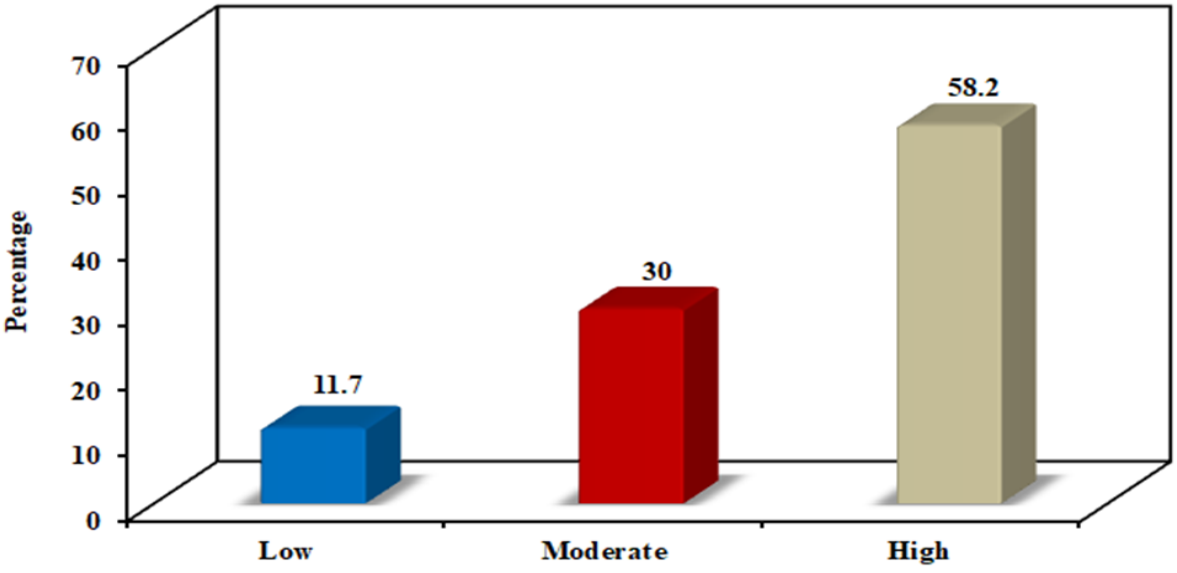

Figure (2): Levels of the nursing students' overall self-confidence with clinical simulation experience (n = 819)

Table (4): Correlation between nursing students' experience with clinical simulation design. and their self-confidence with clinical simulation dimensions (n = 819)

Self-confidence dimension	Clinical simulation experience design structured									
	Objectives and information		Student support		Problem solving skills		Feedback /Guided Reflection		Fidelity (Realism)	
	R	P	R	p	r	p	r	P	r	p
- Confidence in learner's abilities	0.670*	<0.001*	0.663*	<0.001*	0.711*	<0.001*	0.722*	<0.001*	0.680*	<0.001*
- Confidence in Instructors' skills and knowledge	0.629*	<0.001*	0.644*	<0.001*	0.653*	<0.001*	0.676*	<0.001*	0.611*	<0.001*
- Confidence in clinical simulation	0.681*	<0.001*	0.674*	<0.001*	0.677*	<0.001*	0.680*	<0.001*	0.641*	<0.001*

r: Pearson coefficient
*: Statistically significant at $p \leq 0.05$

Table (5): Correlation between nursing students' experience with clinical simulation design and their self-confidence with clinical simulation experience (n = 819)

Clinical simulation experience design structured vs.	r	P
Self-confidence with clinical simulation experience	0.813*	<0.001*

r: Pearson coefficient
*: Statistically significant at $p \leq 0.05$

Table (6): Relation between total score of nursing students' experience with clinical simulation design and their personal and studying related data (n = 819)

Personal and study related data	N	Clinical simulation experience design Mean ±SD.	Test of Sig.	P
Gender				
Male	**269**	123.23 ± 17.0	t= 6.082*	<0.001*
Female	**550**	115.33 ± 18.30		
Age (years)				
≤20	**546**	118.3 ± 18.54	t= 0.723	0.470
>20	**273**	117.3 ± 17.69		
Academic year				
Second	**413**	118.3 ± 18.84	t= 0.590	0.555
Third	**406**	117.5 ± 17.65		
Place of residence				
Urban	**347**	118.8 ± 18.05	t= 1.230	0.219
Rural	**472**	117.3 ± 18.40		
Previous achievement				
Excellent	**511**	118.8 ± 19.08	F= 2.813*	0.038*
Very good	**250**	117.2 ± 16.93		
Good	**50**	114.8 ± 13.25		
Satisfactory	**8**	103.0 ± 24.58		
Working during studying years				
No	**369**	118.4 ± 18.60	t= 0.719	0.472
Yes	**450**	117.5 ± 17.98		
Clinical simulation course				
Critical care nursing				
No	**617**	116.5 ± 18.68	t= 4.254*	<0.001*
Yes	**202**	122.3 ± 16.17		
Medical surgical nursing				
No	**406**	117.5 ± 17.65	t= 0.590	0.555
Yes	**413**	118.3 ± 18.84		
Maternity and obstetric nursing				
No	**617**	116.5 ± 18.68	t= 4.254*	<0.001*
Yes	**202**	122.3 ± 16.17		
Pediatric nursing				
No	**615**	119.6 ± 18.09	t= 4.647*	<0.001*
Yes	**204**	112.8 ± 17.84		
How many courses				
1	**413**	118.3 ± 18.84	F= 14.231*	<0.001*
2	**204**	112.8 ± 17.84		
3	**202**	122.3 ± 16.17		
Place of simulation				
Satisfactory	**675**	121.5 ± 16.04	t= 12.322*	<0.001*
Unsatisfactory	**144**	101.0 ± 18.56		

SD: **Standard deviation** **t: Student t-test** **F**: **F for One way ANOVA test**
p: p value for comparison between the studied categories
*: Statistically significant at p ≤ 0.05

Table (7): Relation between total score of nursing students' self-confidence with clinical simulation experience and personal and studying related data (n = 819)

Personal and study related data	N	Nursing Students' Self-Confidence with Clinical Simulation Experience Mean ±SD.	Test of Sig.	P
Gender				
Male	**269**	84.37 ± 10.45	t= 5.319*	<0.001*
Female	**550**	80.02 ± 11.26		
Age (years)				
≤20	**546**	81.36 ± 11.74	t= 0.354	0.723
>20	**273**	81.63 ± 9.99		
Academic year				
Second	**413**	80.82 ± 11.81	t= 1.629	0.104
Third	**406**	82.09 ± 10.48		
Place of residence				
Urban	**347**	82.55 ± 10.76	t= 2.442*	0.015*
Rural	**472**	80.64 ± 11.43		
Previous achievement				
Excellent	**511**	81.75 ± 11.79	F= 2.130	0.095
Very good	**250**	81.50 ± 10.10		
Good	**50**	79.40 ± 8.17		
Satisfactory	**8**	73.25 ± 16.50		
Working during studying years				
No	**369**	82.10 ± 11.47	t= 1.506	0.132
Yes	**450**	80.92 ± 10.93		
Clinical simulation course				
Critical care nursing				
No	**617**	80.65 ± 11.38	t= 3.574*	<0.001*
Yes	**202**	83.87 ± 10.20		
Medical surgical nursing				
No	**406**	82.09 ± 10.48	t= 1.629	0.104
Yes	**413**	80.82 ± 11.81		
Maternity and obstetric nursing				
No	**617**	80.65 ± 11.38	t= 3.574*	<0.001*
Yes	**202**	83.87 ± 10.20		
Pediatric nursing				
No	**615**	81.82 ± 11.39	t= 1.659	0.097
Yes	**204**	80.32 ± 10.47		
How many courses				
1	**413**	80.82 ± 11.81	F= 6.516*	0.002*
2	**204**	80.32 ± 10.47		
3	**202**	83.87 ± 10.20		
Place of simulation				
Satisfactory	**675**	82.98 ± 10.16	t= 7.659*	<0.001*
Unsatisfactory	**144**	74.25 ± 12.85		

SD: **Standard deviation** **t: Student t-test** **F: F for One way ANOVA test**
p: p value for comparison between the studied categories
*: Statistically significant at p ≤ 0.05

Discussion

One effective method of assisting students in reaching their learning goals is the use of clinical simulation. There is less stress and more opportunity to learn and grow in an immersive setting, which is ideal for clinical rotations. simulation-based clinical education is a novel approach to teaching that allows nursing students to practice safe decision-making and clinical skills in simulated real-life scenarios **(Alsadi et al., 2023).** The use of realistic, hands-on experiences in clinical simulation also helps to develop clinical judgment and critical thinking skills. More than that, students who took part in the simulations shown great attitudes toward learning, were more competent, and gained self-assurance in their capacity to use these skills in the actual world **(Bdiri Gabbouj et al., 2024, Kaliyaperumal et al., 2021).** So, this study aimed to assess experiences of clinical simulation and nursing students' self-confidence.

Nursing students' experience with clinical simulation design:

The present study revealed that, around half of the nursing students had a high level of experience with overall clinical simulation design. The results show that nursing students value clinical simulation as an educational tool. More than half of them took at least one course via simulation, which is designed to improve clinical competence in a controlled setting; this might be because of the growing importance of simulation-based learning in nursing programs. In addition, the objective/information dimension is the most important part of clinical simulations, and nearly half of the nursing students who participated had a high level of experience with it. This helps students learn new skills and improves their learning outcomes.

da Costa Brasil et al. (2018) found similar results, demonstrating that the simulation design components had generally excellent values. Additionally, they demonstrated that the simulations' design was well-organized and understandable. A well-structured scenario enables the student to acquire the necessary skills for clinical practice, and every step of the process, from briefing to debriefing, demonstrated understanding and learning in accordance with the stated purpose. Furthermore, **Nunes et al., (2022)** reported that it is essential to include best practices into the design of clinical simulations in order to establish and track learning goals According to **García-Mayor et al. (2021)**, students expressed their excitement and appreciation of simulation experiences, which led them to indicate that they had a good time throughout the simulation. The capacity to perform well in clinical situations is also thought to be improved by simulation. In addition, **Ribeiro et al. (2023)** found that undergraduates benefit from clinical simulation. The simulations facilitate

the integration of theory and practice, the enhancement of psychomotor abilities, and the promotion of participant-to-participant contact, in contrast to more conventional forms of teaching. Students' professional performance is supposedly enhanced by the fact that knowledge gained via simulations is less likely to be forgotten.

This finding runs counter to what **Tosterud (2015)** found, which indicated that students preferred the tried-and-true methods of paper and pen over the cutting-edge simulation tools. Additionally, **Costa et al. (2020)** verified that conventional methods of instruction might also inspire contentment and self-assurance in students.

Nursing students' self-confidence with clinical simulation experience Results showed that with clinical simulation experience, over half of the nursing students surveyed reported high levels of self-confidence. From researcher's viewpoint, students' self-confidence is enhanced by the use of simulation as a primary learning approach, which provides several opportunities for practice in a controlled setting. Interactive, hands-on learning may help students develop a high sense of self-confidence by allowing them to practice what they've learned without putting actual patients in danger.

This finding is in line with **Aldhafeeri and Alosaimi, (2020) & Souza et al., (2020),** that had shown that the majority of nursing students felt quite confident and satisfied after participating in clinical simulations. Also, **Carrero-Planells et al., (2021)** observed that student perceptions of CS were good, and they thought it may help them manage the anxiety and tension that comes with clinical rotations. Furthermore, **Alharbi and Alharbi, (2022)** who indicated that after the human patient simulation experience, most nursing students reported feeling satisfied and more confident.

Also, studies conducted by **Cabañero-Martínez et al., (2021)** and **García-Mayor et al., (2021)** found that when nursing students used the simulation approach, their levels of satisfaction and self-confidence were much greater. conversely, **Silva et al., (2022)** not support the present study result and revealed that the majority of nursing students report high levels of stress and anxiety when participating in a simulation, which can affect students' self-confidence and hinder learning.

Correlation between nursing students' experience with clinical simulation design and their self-confidence; Results showed that the more time nursing students spent practicing in simulated clinical settings, the more confident they felt after each session. There was a clear and substantial relationship between the various aspects of nursing students' experience with clinical simulation design and their level of self-confidence when it came to clinical

simulation. In order to boost nursing students' self-confidence during simulation activity, these results highlighted the importance of instructional techniques and design aspects during simulation sessions. In the same line with the current result is **Mohamed and Mohamed (2020)** further highlighted a very substantial association between simulation design and student satisfaction/self-confidence in learning, which is in accordance with the present conclusion. Another important finding from **Alyateem et al., (2024)** this research was showed the importance of SBL in nursing education. All participants agreed that the simulated situations helped them gain confidence, sharpen their clinical skills, and make better decisions.

In this regard, **Olaussen et al. (2020)** found that students' self-confidence during simulation activity management was positively correlated with learning objectives and information components of the simulation design, and that active learning of educational practice is a crucial component to achieve students' satisfaction and self-confidence.

However, a study conducted by **Kada (2013)** in the United States found no statistically significant relationship between the self-confidence of associate degree nursing students and their perception of whether a high fidelity simulator learning experience included the following instructional design components: objectives and information, support, problem-solving, feedback/guided reflection, and fidelity/realism.

Relation between nursing students' experience and self-confidence with clinical simulation design and their personal and studying related data, This study found a statistically significant correlation between the following variables: gender, prior accomplishment, clinical simulation (medical surgical course), and the design of nursing students' clinical simulation experiences.

This finding is in line with **Alshutwi et al. (2022)** who demonstrated that the overall score of the simulation scenarios differed considerably by gender and that the simulation efficacy tool changed significantly by demographic variables. In contrast, **Alsadi et al., (2023)** showed no statistically significant difference between male and female students regarding satisfaction in simulation or self-confidence in simulation.

Alsadi et al. (2023) verified that students from various years of the 4-year nursing program did not vary significantly in their satisfaction with simulation learning. According to **Alshutwi et al. (2022)**, The debriefing domain was also positively associated with GPA. Also, **Hung et al. (2021)** supported the use of simulation in preparing undergraduate nursing students to face real-world situations in medical, and surgical management areas and practice in an anxiety-free, safe environment, and reported that

students pursuing critical care nursing had higher satisfaction and self-confidence with the educational practices and simulation design used.

As an added bonus, **Saragih et al. (2024)** demonstrated a substantial correlation between the location of the simulation scenario and the score of the simulation experience design. Students' proficiency, self-assurance, and practical knowledge are all enhanced by the use of simulation-based learning, which lessens their fear of failure. It is possible to adapt and enhance simulation-based approaches depending on cultural norms and resource availability. This involves giving careful thought to the level of realism (low, medium, or high) of the simulation and the tools used to convey it (virtual, video, standardized patient, mannequin, etc.).

Nevertheless, the current study's findings were not corroborated by **Mohamed and Mohamed (2020),** who demonstrated that the demographic data of students, all aspects/. of the simulation design, and students' satisfaction and self-confidence were not significantly different.

Conclusion: Based on the findings of the present study, it was concluded that around half of nursing students had a high level of experience with clinical simulation design. As well as, more than of nursing students had a high level of self-confidence with clinical simulation experience . Moreover, there was a positive statistically significant correlation was found between nursing students' experience with clinical simulation and their confidence with clinical simulation experience.

Recommendations: The following recommendations were suggested:

- Allocating budget for purchasing equipment and high fidelity patient simulation manikins to adapt to local and international challenges facing nursing education.
- Develop comprehensive training programs for nursing educators in different specialties to learn effectively how to design, practice, and debrief simulation-based experiences for meeting the intended learning outcomes of the nursing syllabus.
- Create a reward system such as recognition and certificates of appreciation for clinical nursing instructors applying clinical simulation to enhance their performance and achieve the required learning outcomes.

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