

Effect of Simulation Teaching Strategy on Female Maternity Nursing Students' Knowledge, Practices, and Self-Efficacy regarding Breast Self-Examination

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Abstract

Background: Simulation continues to be an innovative teaching method that enables students to practice and gain experience. **The study aimed to** evaluate the effect of simulation teaching strategy on female maternity nursing students' knowledge, practices, and self-efficacy regarding breast self-examination. **Method:** The study's aim was accomplished using a one group pre/post-test quasi-experimental **Design. Setting:** The study was applied in the Faculty of Nursing, Sohag University, Egypt. **Subjects:** A convenient sample included 250 female students who study maternity nursing from the third year from the previously mentioned setting. **Three tools** were used Self-administered questionnaire schedule, Breast self-examination observational checklist, and Students' self-efficacy (GSE) helped in collection of data. **Results** presented that after one month of the simulation teaching technique about breast self-examination, (96%) of the studied students had reached a satisfactory practice level. Prior to the use of the simulation teaching technique regarding breast self-examination, (70%) of the students had an unsatisfactory practice level, compared to 4% before. **Conclusion** Applying simulation teaching strategy regarding Breast Self-Examination help Studied students to gain more knowledge , more practice of BSE, and had better self-efficacy than before. **Recommendations:** To teach female maternity nursing students about breast self-examination effectively, a simulation teaching strategy should be used.

Keywords: Breast self-examination, Knowledge, practices, self-efficacy & Simulation teaching strategy.

Introduction

The WHO estimates that 19.3 million individuals in 2020 received a cancer diagnosis, and 9958,133 people died as a result. 2.3 million New cases of female breast cancer resulted in 685 deaths globally. The most common cancer in the globe as of the year 2020 was breast cancer, which had been identified in 7.8 million women over the previous five years. After puberty, breast cancer can strike at any age; however it tends to strike more commonly as people age. As a result, governments are under a lot of strain. In Turkey, 24,175 new cases of breast cancer have been identified, representing a new case rate of 46.6 per 100,000 individuals (WHO, 2020).

Worldwide, a huge majority of women believe that breast cancer is their biggest health concern. As the second important cause of cancer-related fatalities next lung cancer, it is regarded as the most prevalent malignancy. American Cancer Society (2017) estimated that 42,260 breast cancer deaths will occur in 2019 since female breast cancer incidence rates

marginally increased between 2006 and 2015, by 0.4% annually (Siegel et al., 2019).

The cornerstones of managing breast cancer and lowering related fatalities are early identification and screening (Shahbazi et al., 2017). BSE is the most effective, affordable, secure, and preventive procedure that a woman can employ on her own. It doesn't require specialized staff or equipment, and it's primarily used to spot alterations in the breast's structural makeup. It is an important technique for early cancer detection as well (Mohammed, 2018).

All women above the age of 20 should conduct BSE regularly once a month to increase awareness of breast cancer. The efficiency of the BSE was discovered to be 78% in detecting breast cancer. Additionally, BSE is promoted among women to help them get past their fears, stigmas, and limitations. (Kumarasamy et al., 2017 & Sama et al., 2017) There are cultural beliefs in many nations that make it uncomfortable for women to learn anything about BSE. Despite the significance of BSE, only a small percentage of girls routinely conduct it, and many

don't even understand the steps. Therefore, it is the role of the health care system to provide knowledge on how to do BSE correctly, especially for college students. Today, it is crucial to teach college students the basics of BSE. Through suitable presentations and teaching approaches, education is achieved more effectively and efficiently (Ayed et al., 2015)

Early diagnosis is crucial in controlling cancer, so further development is required in discovering strategies to prevent the disease. An early cancer diagnosis is accomplished through screening programs. For early abnormality detection in breast scans, the following three techniques are frequently advised: mammography, clinical breast exam, and breast self-examination (Budden, 2019). Early diagnosis increases the quality of life, extends the average survival time, as well as reducing the death rates related to breast cancer. (Budden, 2019)

Breast self-examination (BSE) is an inexpensive, quick, and easy approach that women can use to diagnose breast cancer early. BSE is a widely used procedure for the early detection of the disease in underdeveloped nations like Turkey (Bouya et al., 2018). Women who routinely practice BSE every month can spot pathological alterations before they become severe. Although the BSE test is important and relevant, the BSE rates are low (Alwan et al., 2012). Insufficient knowledge of breast cancer symptoms, a lack of factors supporting BSE, and a lack of information on how to apply could be the causes of this (Zeru et al., 2019).

As part of their vital duties as nurses, BSE practices are viewed as encouraging all women to do and practice BSE for the early identification of cancer. Therefore, to reduce mortality and prevent breast cancer, nurses must be educated and skilled in BSE. The BSE examination is rarely performed by nurses, they have limited BSE expertise, and they are unwilling to undertake it. A tiny percentage found that 17.2% of nursing students were aware of BSE, while 50% of nursing students were aware of breast cancer risk factors and symptoms (Akhtari et al., 2019). Nursing students practice their professional skills in the clinical setting. Since the 1990s, nurses have employed simulators in their classrooms to assist students get practical experience. As part of the simulation, a cutting-edge teaching method that enables students to practice and acquire experience, a genuine clinical atmosphere is offered. The simulation experience benefits students in terms of cognitive, psychomotor, and emotional learning. It offers people the possibility to improve their knowledge, critical thinking abilities, enjoyment, attitudes, and self-confidence in a safe learning environment. Whether students are aware of it or not, hybrid simulation-based (HSB) instruction employs

standardized patients (SP) to assist students advance their professional skills. (Powell, et al., 2018).

The Miller pyramid is a structured framework used by individual health professions learners. It incorporates evaluation goals from lower levels into higher levels and represents different stages of the educational process. The Miller pyramid was used in this study to make it simpler to construct the learning process for BSE instruction, from the lowest level to the greatest level, as well as to establish learning outcomes and evaluate progress. Powell's study aimed to evaluate the effectiveness of hybrid simulation-based training to conventional training by evaluating students' knowledge, skills, and pathologies in breast self-examination using the Miller pyramids. (Powell, et al., 2018).

Through discussion after simulating clinical settings with a simulator, practical simulation training is a teaching technique that aids students in developing their nursing knowledge and abilities. As field placements have been disrupted by the pandemic, alternative practical training using simulation is currently being used extensively throughout nursing schools. It entails materializing a clinical environment that is similar to actual conditions to facilitate nursing practice in a safe, virtual environment. In general, it is known that practical simulation training helps nursing school students develop their nursing abilities as well as their confidence, satisfaction, anxiety, tension, and academic motivation. Although these benefits, maternity students may not be able to put the abilities they learn in practical simulation training to use in the real world (Moran et al., 2018).

In nursing, "simulation-simulation teaching strategies" relate to a range of exercises. These activities go beyond merely manipulating mannequins and also involve the use of technology, knowledgeable experts, lifelike virtual settings, and role-playing. Clinical simulation is becoming more significant in nursing education. In the words of the National Council of State Boards of Nursing (NCSBN), it is "an activity or event replicating clinical practice using scenarios, high-fidelity manikins, medium-fidelity manikins, standardized patients (SP), role-playing, skills stations, and computer-based critical thinking simulations." (Alexander et al., 2020)

Scientific understanding and common practice are at odds with one another, as evidenced by the fact that nurses frequently carry out treatments traditionally or routinely. These include enhancing nursing students' sense of self-efficacy, as this can increase their confidence in their capacity to carry out nursing activities and address nursing issues, thus raising the standard of care provided to patients (Lee et al., 2013).

Significance of the study:

According to El-Saghir et al. (2014), Egypt has a median age for breast cancer diagnosis that is 10 years lower than it is in the US and Europe. BSE is one of the most crucial methods for detecting breast cancer. It is crucial to give advice and encourage old women to undergo BSE on a regular basis in order to make sure the illness is discovered in its early stages and before it becomes aggressive. It is essential to further inform college students about breast cancer prevention, education, and awareness initiatives. Benefits of simulation-based clinical education include quick feedback, repeated practice learning, the opportunity to adjust the level of difficulty, and the potential for personalized learning. On the other hand, the research shows that there are little chances for undergraduate students to apply their nursing knowledge to actual patients. This data raises concerns about the competency of newly educated medical professionals in the future, particularly nursing staff, raising the possibility of mistakes & risking patient safety. (Cant et al., 2017). Therefore, this study focused on enhancing the maternity nursing students' knowledge, practices, & Self-Efficacy by adopting the simulation teaching strategy about breast self-examination.

Aim of the study: To evaluate the effect of simulation teaching strategy on female maternity nursing students' knowledge, practices, and self-efficacy regarding breast self-examination.

Operational definitions:

Simulation teaching strategy: Nursing students can acquire cognitive, emotional, and psychomotor abilities via the use of simulation teaching strategies in a safe, non-threatening practice environment, utilizing realistic technology that resembles actual clinical practice situation. It classified as low, mid, and high –fidelity simulation.

Knowledge: is the ability to gather, store, and apply information. A combination of comprehension, experience, discernment, and skill.

Practice: Is applying knowledge and norms to real-world situations .It is an art that is connected to knowledge advancement is deserving practice.

Self-efficacy: Is a concept of people's beliefs about their own capabilities, it is believed to regulate people's motivation, behaviors, and other outcomes

Research Hypotheses:

H.1: Female maternity nursing students who will participate in Simulation Teaching Strategy regarding Breast Self-Examination are expected to gain more knowledge than who do not.

H.2: Female maternity nursing students who will participate in Simulation Teaching Strategy regarding Breast Self-Examination are expected to practice BSE more than who do not.

H.3: Female maternity nursing students who will participate in Simulation Teaching Strategy regarding Breast Self-Examination are expected to have better self-efficacy than who do not.

Methods:

Research design: The study's aim was accomplished using a one group (pre/post-test) A Quasi-experimental design .

Settings: The study was applied in the Faculty of Nursing, Sohag University, Egypt.

Subjects: A convenient sample included 250 female maternity nursing students from the third year from the previously mentioned setting was recruited.

Data collecting tools:

In this investigation, three tools were employed to gather data.

Tool (I): Self-administered questionnaire Schedule after studying relevant material from both national and international sources (Al-Naggar et al., 2018 and Ranasinghe et al., 2013), the researchers created it. They included the following three components:

Part 1: Information about age and home of residence of female maternity nursing students was provided in this part .

Part 2: It also asks about family history and personal experiences with breast lumps regarding risk factors for breast cancer.

Part 3: Structured multiple-choice questionnaire (pre and post-one month) to assess the maternity nursing students' knowledge about the BSE. It involved anatomy and physiology of the breast, the def. of both breast cancer & BSE, types, modifiable & non-modifiable risk factors, signs and symptoms, complications, importance of BSE, Reasons for BSE, the appropriate time of performing BSE, the frequency of performing BSE, and barriers of BSE.

Scoring system

The score for each accurate response was one, whereas the score for each erroneous response was zero. The knowledge levels of the maternity nursing students were divided into three classifications: **poor** (less than 50%), **fair** (50-75%), and **good** (more than 75%).

Tool II: Breast self-examination observational checklist (pre/posttest). The observation checklist was used to assess female maternity nursing students' practice about BSE (Pawan et al., 2017 & Kommula et al., 2018).

Scoring system

The scoring scheme for the observational checklist was (2) for complete correct done, (1) for partially done, and (0) for not done. The scores of nursing practices were divided into two classes: Unsatisfactory practice and satisfactory practice. Unsatisfactory practice was defined as a score of less than 80%, and satisfactory practice was defined as a

score of more than 80%. These beneficial training sessions included lectures, group discussions, demonstrations, and re-demonstrations.

Tool III: Students' self-efficacy scale: The General Self-Efficacy scale (GSE) adopted from (Schwarzer, & Jerusalem, (1995)). It was used to assess students' self-efficacy. The GSE has a 10-item scale used to estimate one's perceptions of their capacity to contract with a variety of challenging life circumstances.

Scores on the General Self-Efficacy Scale range from 10 to 40, with a score of 40 representing the greatest attainable result. The scale takes 4 minutes on average to complete. Cronbach's coefficients range from .76 to .90 and the majority in the high 0.80s, the scale's reliability has been proven in samples from 23 different countries (Schwarzer, & Jerusalem, (1995)).

Validity and reliability:

The instruments' clarity, relevance, applicability, and comprehensiveness were reviewed by five professionals in the field of maternity nursing who evaluated the content validity. As measured by the Cronbach's alpha coefficient test, tool (I) scored 0.942, tool (II) 0.897, and tool (III) 0.946 in terms of the reliability of internal consistency.

Ethical considerations

The study was authorized by the nursing faculty's ethical committee. The administrator of the aforementioned settings approved the program's implementation and data collection in writing. The studied students were informed of the study's aims and methodology. The participants were told they could opt out and that the data would only be utilized for the study. The research's goal was explained in writing, and the students of nurses were asked to sign it. Questionnaires were made anonymous to preserve confidentiality.

Pilot study

Pilot study was conducted on (10%) of the total sample (25 female maternity nursing students). To assess the ease of use, viability, clarity, and applicability of the created tools. The required revisions were made. The pilot study did not include in the total.

Field of work

The director of Sohag University Hospital gave his blessing. From February 2023 to March 2023, the study was carried out across two months. The interview began with the researchers welcoming each student in maternity nursing, introducing themselves, and outlining the purpose and design of the study. Phases of the study's execution included:

Assessment Phase

- Each female maternity nursing student was interviewed before implementing the program. Each

student filled in her characteristics using the tool (I) part (1 and II).

- Using tool (I) part (3), tool II, and tool III, the knowledge, practice, & self-efficacy of female maternity nursing students about BSE were evaluated.

Planning phase:

- On the basis of the outcomes of the previous phase, the objectives, priorities, and predictable results were defined in order to address the practical requirements, knowledge gaps, and self-efficacy about BSE of female maternity nursing students.
- For the female maternity nursing students they were studying in this phase, the researchers organized four sessions (two theoretical and two practical) to provide them with information and practice about BSE.

The simulation teaching strategy

The simulation teaching strategy was created and improved. It included BSE-related practical sessions.

The general objectives of simulation teaching strategy sessions:

By the end of the sessions, it was anticipated that the female maternity nursing students would have acquired information and skills that would improve their performance and sense of self-efficacy about BSE.

Specific objectives of the program:

- Know the anatomy and physiology of the breast
- Define breast cancer.
- Define the BSE.
- List types of breast cancer
- Identify the predisposing & risk factors of breast cancer.
- Enumerate the S&S of breast cancer.
- Explain the BSE important
- Enumerate the reasons for BSE
- Discuss the suitable time for performing BSE
- Know the frequency of performing BSE
- Enumerate the barriers of BSE
- List the complications of breast cancer.
- Demonstrate the BSE technique.
- Perform the appropriate documentation

Implementation phase:

- During four sessions, two of which are theoretical and two of which is practical, each lasting about 30 to 45 minutes, the adoption of the simulation-teaching technique was intended to improve female maternity nursing students' knowledge, practices, and self-efficacy regarding BSE.
- Each session began with the researchers gathering input on the previous session, and each session ended with a summary from the researchers.
- The subjects of the study were separated into subgroups of female maternity nursing students varied sizes (15–16 for each group).

- To implement the simulation teaching strategy, Several teaching methods were employed including lectures, small group discussions, photographs, brainstorming, demonstrations, and re-demonstrations using the appropriate tools and a simulation manikin that was available in the faculty clinical lab. Tools for educating about BSE included handouts, PowerPoint, illustrations, a flipchart, and animated films.
- In addition, a brief booklet including all information, practices, and self-efficacy related to breast self-examination was employed as supportive material and given to nurses in English language among the study's female maternity nursing students. This was done after analyzing the pertinent literature centered on the evaluation of the actual requirements of the population.

The following sessions were granted out of the theoretical and practical ones :

- **The first session (Theoretical):** The researchers introduced themselves, welcomed the studied students, expressed thankfulness for participation in the study, and described the goals of these educational sessions at the start of this session. The following topics were discussed in the first session; anatomy & physiology of the breast, the definition of breast cancer and BSE, types, predisposing factors, signs and symptoms, and complications of breast cancer.
- **Second session (Theoretical):** which included the items connected to the BSE important, Reasons for BSE, the suitable time for performing BSE, the frequency of performing BSE, and barriers to BSE.

- **Third session (practical):** During these sessions, female maternity nursing students who had been studying the BSE process at the faculty clinical lab performed a clinical demonstration and a follow-up demonstration. During these sessions, the simulation manikin was used. All students participated in a simulator orientation training in the faculty's obstetric nursing lab before the simulation sessions started. While others played patients, some of the participants took on the roles of nurses at the hospitals.
- **Fourth session (practical):** The researcher began by gathering feedback on the earlier sessions and responding to any questions concerning BSE before distributing the post-test and thanking all the female maternity nursing students.

Evaluation phase: To inspect the impact of the simulation teaching strategy, knowledge practices, and self-efficacy of maternity nursing students were reassessed one month after the method was put into place (posttest) using the aforementioned techniques.

Statistical analysis:

The data was tabulated, coded, and converted to an information format suitable for computer entry. Data input and analysis were both done using SPSS version 22. The visual creation was assisted by the use of the Excel application. Quantitative data that were presented as mean and SD were utilized in a t-test to compare the results of the pretest and posttest for the same group. Quantitative data was represented by numbers and percentages. A P-value of 0.05 or less was used to indicate statistical significance.

Results:

Table (1): Distribution of demographic characteristics among the studied students (n=250)

Demographic characteristics		Total studied students (n=250)	
		NO.	%
Age (year)	<20	215	86
	>20	35	14
Mean ± SD / years	19.01±1.22 years		
Residence	Urban	200	80.0
	Rural	50	20.0

Table (2): Distribution of the studied students according to their Exposure to Risk Factors of Breast Cancer (n=250).

Risk Factors of Breast Cancer		Total students number (n=250).	
		NO.	(%)
Family history	Mother	3	1.2
	Sister	0	0.0
	Aunt	3	1.2
	Grandmother	3	1.2
	No affection	241	96.4
History of breast lump	Yes	3	1.2
	No	247	98.8

Table (3): Distribution of the studied students according to their knowledge regarding breast cancer and breast self-examination pre and one-month post-simulation teaching strategy implementation (n. =250)

Studied students' Knowledge regarding Breast cancer& BSE.	Pre- simulation teaching strategy implementation (n=250)		Post-simulation teaching strategy implementation (n=250)		F	P-value
	No	%	No	%		
Anatomy & physiology of the breast:						
Definition the breast cancer					117.8	<0.001**
- Correct	155	62.0	250	100		
- Incorrect	95	38.0	0	0.0		
Definition the BSE					136.9	<0.001**
- Correct	110	44.0	250	100		
- Incorrect	140	56.0	0	0.0		
Types of breast cancer					127.2	<0.001**
- Correct	130	52.0	250	100		
- Incorrect	120	48.0	0	0.0		
Predisposing factors of breast cancer					108.5	<0.001**
- Correct	110	44.0	250	100		
- Incorrect	140	56.0	0	0.0		
Signs and symptoms of breast cancer					97.9	<0.001**
- Correct	95	38.0	250	100		
- Incorrect	155	62.0	0	0.0		
Complications of breast cancer					87.6	<0.001**
- Correct	140	56.0	250	100		
- Incorrect	110	44.0	0	0.0		
Did you perform BSE before		22	250			
- Yes	55	78	0	100	97.9	<0.001**
- No	195			0.0		
BSE important						
- Yes	50	20.0	250	100		
- No	10	4.0	0	0.0	87.6	<0.001**
Don't know	190	76.0	0	0.0		
Reason						
- Help early detection of breast cancer	215	86	250	100	97.9	<0.001**
- Do not know	35	14	0	0.0		
the appropriate time to perform BSE						
- True answer	30	12	250	100	87.6	<0.001**
- False answer	220	88	0	0.0		
Frequency of performing BSE		20	250	100		
- True answer	50	80	0	0.0	97.9	<0.001**
- False answer	200					
Barriers #						
- Unawareness of importance	225	90	250	100		
- Postponing performance of BSE	5	2	0.0	0.0	87.6	<0.001**
- Embarrassment	5	2	0.0	0.0		
- Fear of the results	15	6	0.0	0.0		

More than one answer might be given

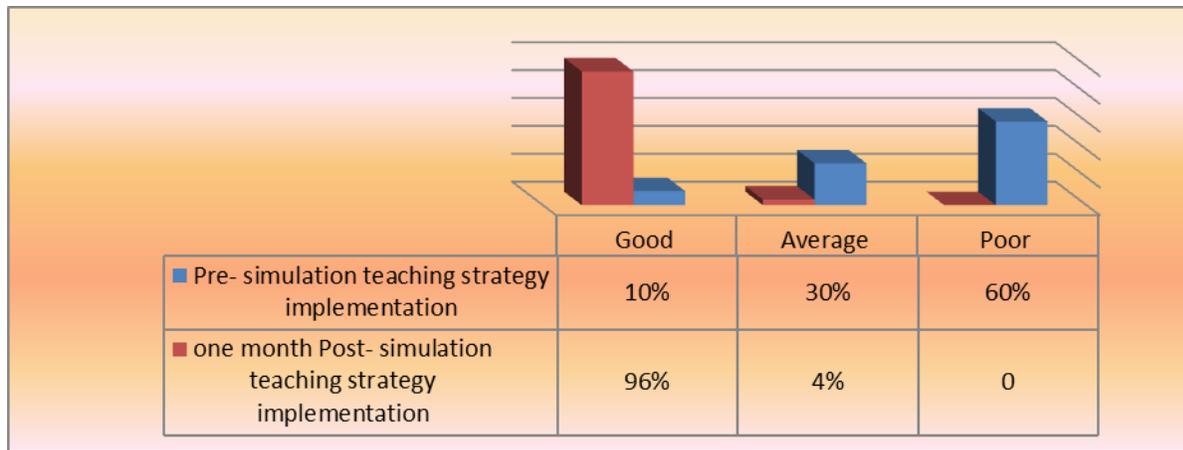


Figure (1): Distribution of the studied students total level of knowledge score regarding BSE pre and one-month post-simulation teaching strategy implementation (n=250)

Table (4): Distribution of the studied students according to their practice regarding BSE pre and one-month post-simulation teaching strategy implementation (n=250)

Female maternity nursing students' practice	Pre/ simulation teaching strategy implementation (n=250)				Post/simulation teaching strategy implementation (n=250)				F	P
	Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory			
	No	%	No	%	No	%	No	%		
Technique of BSE	200	80.0	50	20.0	10	4.0	240	96.00	145.37	0.000**
Position during BSE	210	84.0	40	16.0	0	0.0	250	100.0	157.22	0.000**

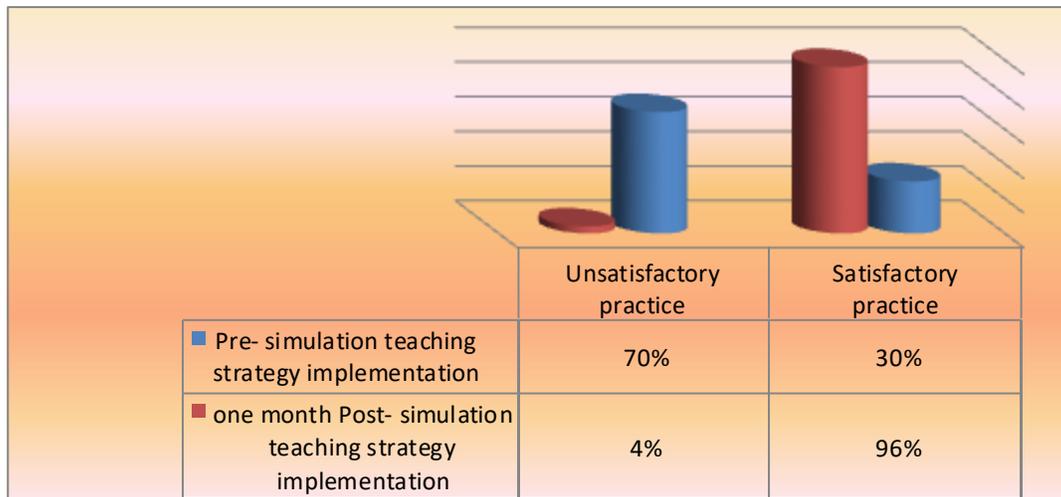


Figure (2): Distribution of the studied students according to level of practice regarding BSE pre and one-month post-simulation teaching strategy implementation (n=250)

Table (5): Distribution of the studied students according to their self-efficacy level immediately and one month post of simulation teaching strategy implementation (no=250)

Items	Immediately post-simulation teaching strategy implementation (n=250)	Post /one month of-simulation teaching strategy implementation (n=250)	F	P
Self-efficacy	Mean ± SD 113.43 ± 27.77	Mean ± SD 139.23 ± 44.23	37.04	<0.001**

Table (6): Correlation coefficient between total knowledge, practice, and self-efficacy among the studied students pre and post-one month of simulation teaching strategy implementation (No= 250)

Variable	Correlation coefficient	P-value*
Knowledge- self-efficacy	0.449	<0.001**
Knowledge- practice	0.236	<0.001**
Self-efficacy – practice	0.227	<0.001**

Regarding the age of the studied students, **table (1)**'s findings showed that the biggest percentage was among those under 20 years old, at (86%), and the lowest percentages (14%) were among those over 20 years old. The mean age was **(19.01±1.22)** years old. Regarding where they live, (80%) of students are urban residents.

The majority (96.4%) of students had no family history of breast cancer, according to **Table (2)**, while only (1.2%) of students had a history of breast lumps.

Table (3): Shows distribution of the studied students according to their knowledge regarding breast cancer and BSE pre and one-month post-simulation teaching strategy implementation. It explained that, although, there was an improvement in the knowledge of studied students post one month after the simulation teaching technique with (100%) related to all topics of BSE. There were high percentage of studied students more than three quadrants (78%) of them did not do BSE. The studied students were unaware of the proper time to do BSE and its frequency (88%). There were high statistically significant differences between pre /post one month after simulation teaching technique application ($p < 0.001^{**}$)

Figure (1): Shows that, before obtaining the simulation teaching technique, (60%) of the studied students had a low level of BSE knowledge. However, one month after obtaining the simulation teaching technique, their level of knowledge score increased to a satisfactory level (96.0%). With a highly statistically significant difference was found ($P < 0.001$).

A very statistically significant difference between BSE practice pre and one month post the simulation teaching technique was shown in **Table (4):** This table made it evident that, (96%) of the studied students had a satisfactory level of practice using the BSE technique one month after the deployment of the simulation teaching strategy, compared to (20%) of them before simulation technique application. While, it was discovered that whereas (84%) of the studied students had an unsatisfactory level of practice regarding position during BSE before simulation technique application, and (100%) had a satisfactory level of practice one month after the adoption of the simulation teaching technique.

Figure (2): Showed distribution of the studied students according to level of practice regarding BSE pre and one-month post-simulation teaching strategy implementation. It showed that (70%) of the students had an unsatisfactory practice level pre/ simulation teaching strategy, compared to only (30%) of students had satisfactory level of practice. While, there was improvement in practice level related BSE one month post-simulation teaching strategy, (96%) of students had a satisfactory practice level related to BSE.

It was demonstrated in **Table (5)** that there was a highly statistically significant difference between self-efficacy immediately and one month post the adoption of the simulation teaching technique ($F = 37.04$, $p 0.001$).

Table (6): At a p-value of < 0.001 , it demonstrated a positive association between the knowledge, practice, and self-efficacy of the studied students after they had received the simulation teaching technique regarding **BSE** procedure. Knowledge, practice, knowledge-self-efficacy, and practice-self-efficacy all showed statistically significant positive associations ($r = 0.449$, $p < 0.001$), as did practice-self-efficacy ($r = 0.227$, $p < 0.001$).

Discussion:

High fidelity simulation is only one of the strategy that nursing educators' staff may usage to aid upcoming maternity nurses get ready for real-world practice. An increasing amount of research shows that high skill levels in practice are associated to high-quality professional nurses and improved results, as well as enough and proper nursing knowledge preparation. (McGaghie et al., 2019)

Regarding to breast cancer, and Breast Self-examination (BSE) knowledge among female maternity nursing students. The findings of the study revealed that, the majority of the studied students thought that BSE was vital for aiding in the early identification of breast cancer; approximately three-quarters of students did not do it. Less than one-fifth of them were unaware of the proper time for doing BSE, while the majority was aware of its regularity. The majority of the sample said that before the deployment of the simulation teaching technique, there was no information available about the BSE practice hurdles. Regarding the source of their information, roughly a quarter of the sample's nursing

students had prior knowledge of BSE thanks to their college courses.

This is reliable with a study of **Al-Naggar et al., (2018)** who study Training and barriers toward Breast Self-Examination among Young Malaysian Women. and concluded that, few of young women performed BSE monthly. This finding was attributed to the nurses' lack of understanding of breast cancer and early detection techniques and indicated that about two-thirds of the study sample had no sources of knowledge about BSE, according to the results of barriers to practicing BSE. In addition to **Al-Naggar et al. (2018)**, reported that forgetfulness and a lack of information were the two most significant hindrances to practicing BSE. This is consistent with a study of Jordanian nurses that found few of them performed BSE monthly. This finding was attributed to the nurses' students lack of understanding of breast cancer and early detection techniques.

In relation to the overall knowledge of female maternity nursing students about Breast Self-examination(BSE), Adolescent female students' desire to improve their technique and knowledge of the value and significance of practicing breast self-examination as a method for early detection of breast cancer is reflected in the current results, which showed that **three-fifths** of the studied students had a low level of knowledge about the disease before receiving the simulation teaching strategy. Therefore, it is crucial to teach the students about BSE & help them to develop. However, following the simulation teaching technique, they significantly increased their level of understanding, reaching an excellent level. According to the researchers' viewpoints, this demonstrates how well the simulation teaching approach was implemented. This illustrated the critical need to comprehend the goal of implementing the simulation teaching strategy to increase students' knowledge.

This is in line with study by **Al-Naggar et al. (2018)** that found forgetfulness and a lack of information to be the two barriers to using BSE, along with a lack of comprehension. This conclusion is supported by research by **Ranasinghe et al. (2013)** who found that women were aware of breast cancer and BSE practice. In a similar vein, **Akhtari et al. (2013)** who studied "behavior of Malaysia undergraduate female students in a public University towards BSE practice." This contradicts the findings of the study by **Al-Dubai et al. (2012)**, which examined "Exploration of barriers to breast - Self Examination among Urban Women in Shah Alam, Malaysia" and discovered that the majority of respondents were aware of BSE. According to the researchers, the sample of nursing students had previously learned about BSE in their college studies. **LaCerra et al.'s (2019)** who study

"Effects of high-fidelity simulation-based on life-threatening clinical condition scenarios on learning outcomes of undergraduate and postgraduate nursing students" supports this judgment by revealing that simulation training increased nursing students' understanding. Additionally, the research by **Alkhasawneh et al. (2019)** demonstrated that women's awareness of breast cancer and early detection techniques increased significantly after the program's implementation. This conclusion is confirmed by the participants' attitudes towards improving and maintaining their health statuses.

Regarding to effect of the simulation teaching strategy on the practice level of the studied students, The current study's findings showed that all of the students studied after one month of the implementation of the simulation teaching strategy had a significant satisfactory level of practice, compared to nearly two-thirds of them before the strategy's implementation. This, in the opinion of the researchers, shows how well female maternity nursing students in need to apply the simulation teaching strategy. This demonstrated the user intent behind the application of the simulation teaching strategy. According to the researcher, maternity nursing students' practice has to be enhanced so that they can better meet the demands of their specialty and demonstrate the value of using simulation teaching strategy. This was consistent with earlier studies by **Gomes et al. (2020)**, **Nuraini et al. (2015)**, & **Beal et al. (2017)** who looked into clinical simulation for the teaching of wound evaluation, the effect of simulation-based education on nursing students', and The effectiveness of medical simulation in teaching medical students critical care medicine, respectively. Comparing clinical simulation to other strategies, all of the authors claimed that it was a great way to boost practical performance.

The findings of results of the current study suggest that the majority of adolescent students did not undertake breast self-examination; this may be attributed to a lack of awareness about BSE or ignorance of BSE. This result is comparable to that found by **Pawan et al., (2017)**, who studied "Knowledge, attitude, and preventive practices of South Indian women towards breast cancer" and discovered a low percentage of students had performed breast self-examination. The failure of teenage female pupils to seek the required medical care may also be responsible for this outcome.

The results of this study show that the BSE checklist improved from the time it was deployed and one month later, when there were extremely significant alterations. This finding is in line with research by **Moussa, Shalaby (2014)** & **Rasu et al. (2017)**, who examined the "Effect of Educational Level on

Knowledge and Use of Breast Cancer Screening Practises" and instituted that the workshop's influence had significantly improved participants' post-test performance.

Finally, Regarding to effect of the simulation teaching strategy on the self-efficacy of the studied students, the results of the present study revealed a highly statistically significant difference in self-efficacy between the time of implementation of the simulation teaching strategy and one month later. This outcome is consistent with some studies by **Zapko et al., (2018), & Saied, (2017)**, who study the impact of simulation on nursing students' knowledge, self-efficacy, satisfaction, and confidence" and started that students were gratified with the simulation experience and that their self- efficacy levels increased post the simulation session. Also, **Mattson (2013)** assured that, high level of self-efficacy in the practice after the simulation session.

The findings also revealed a decline in the student's overall self-efficacy after the simulation session. This result is in contrast to those of other researchers, who found that students' levels of self-efficacy rose after participating in simulated experiences (**Line, 2016; Khalaila, 2013**). Additionally, the study's findings confirmed that the students who were subjected to it had a favourable relationship between their understanding of BSE and their ability to put it into practice. Self-efficacy increases as knowledge and practice do. This result was in line with those of **Doshi et al. (2019) & Alkhasawneh et al. (2019)**, who discovered statistically significant increases in women's knowledge, practice, and adherence to early detection and breast cancer prevention strategies after program me implementation.

Thus, the theory that preclinical simulation training influences students' self-efficacy was proven correct. Studies with related goals have found that simulation-based learning methods help students learn and have higher self-efficacy (**Kim-Godwin et al., 2013; Luctkar-Flude et al., 2012; & Tosterud et al., 2013**). Students are offered a contemporary, comprehensive education in nursing at the undergraduate and graduate levels that combines evidence-based procedures and recent research findings (**Küçük et al., 2017**). Other publications have reported that simulation education increases students' self-efficacy and self-confidence and helps them feel more confident in clinical settings (**Terzioğlu et al., 2016**).

Conclusion:

Based on the study's findings, It was concluded that, Applying simulation teaching strategy regarding Breast Self-Examination help female maternity nursing students to gained more knowledge , more

practice of BSE, and had higher levels of self-efficacy than they had previously.

Recommendations:

Based on the study's findings, it was recommended that

- A simulation teaching strategy should be included as an efficient way to teach all nursing students about all clinical themes in all nursing specialties.
- Provide written and electronic guidelines for adolescents about a BSE regularly.
- Increase female students' awareness of breast cancer and the need of BSE, more health education and training programmers should be introduced.
- To enable generalization of the findings and increased adoption of the simulation teaching technique, it is advised that the current study be replicated on a large sample.

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