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Effect of Simulation on Maternity Nursing Students' Perception, Satisfaction and Self-Confidence

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Abstract

Aim: The current study aimed to assess the effect of simulation on maternity nursing students' perception, satisfaction and self-confidence. **Setting**: The study was conducted at maternity skills laboratory, Faculty of Nursing, Benha University. **Design**: A descriptive study was utilized. **Sampling**: A convenient sampleof 151 students. **Tools**: Three tools were used to collect data, structured interviewing questionnaire, simulation design scale, student satisfaction and self-confidence in learning. **Results**: 53.6% and 46.3%of the students had moderate level of perception and satisfaction regarding simulation activities, 49% of the students had high level of self-confidence in learning regarding simulation activities. There was statistically significant positive correlation between total perception, satisfaction and self-confidence score (p=0.000). **Conclusion:** Students had moderate level of perception and satisfactionin learning regarding simulation activities and had high level of self-confidence in learning regarding simulation activities. **Recommendation:** Students should be provided by variety of simulation-based education on maternity nursing skills to increase level of perception, satisfaction and self-confidence.

Key words: perception, satisfaction, self- confidence, simulation

Introduction

Simulation is a student focus educational method which typically provides a new learning experience for students in a clinical setting and has been a growing part of the curricula in nursing education for the last decade. Simulations are defined as activities that mimic the real clinical environment by incorporating medical procedures, decision-making and critical thinking through techniques such as role playing and the use of devices such as interactive videos or mannequins ***(Pinar et al., 2016)***.

The environment to perform real life simulation activities is a safe learning environment allows students to put knowledge into practice, recognize mistakes prior to entering the career field and detects areas of weakness that need improvement. Debriefing activities allow for reflection to encourage students to self-evaluate and recognize areas for improvement. Faculty encourages students and assists in improving areas of

weakness. By participating in the activities, student's cognitive and psychomotor skills can be enhanced and students can gain a better understanding of didactic material ***(David, 2014)***.

There are three types of simulation with different abilities to mimic reality. Low fidelity simulation uses manikins that are less similar to reality, such as intravenous training arms, intramuscular injection hips. Moderate fidelity simulation uses manikins that offer breath sounds, heart sounds and bowel sounds, and allow for initiation of intravenous therapy but lack the complexity and realism of patient scenarios. High fidelity simulation is an approach to experiential learning using life size manikins with actual physiological and pharmacological responses and sophisticated interactive capability in realistic scenarios ***(Yuan et al., 2012)***.

Feedback is one of the most important aspects in simulation based learning since it promotes reflection which is a tool to promote the process of continuous learning. Therefore, debriefing sessions should be held immediately post the simulation session has been concluded to focus on the objectives that the learner did or did not achieve. The feedback given positive or negative, should allow the learners to evaluate actions and decisions**.** Debriefing is essential to simulation because it supports learner centered discussion and meaningful debriefing can lead to the development of clinical judgment ***(Mariani et al., 2013)***.

The use of simulation based education has been found to increase knowledge retention and build confidence and self-efficacy prior to transitioning into the practice area. Clinical simulation proves a vital role in the field of maternal- child health and allow nursing program to assess competency of student ***(Goldsworthy and Graham, 2013)***.

Simulation ensures uniformity of learning experiences, simulation puts students in situations in which need to be active and in control of learning. As a result, students develop knowledge and skills according to own needs. This stimulating environment and freedom of learning increases student motivation and interest in learning and developing confidence in abilities ***(Larue et al., 2015)***.

The use of simulation increases perception and satisfaction of learning for students in performing clinical skills. Simulation allows students to link theory to practice and develops clinical judgment, without fear of woman harm and help the preparation of students for the nursing profession and represent an effective learning method in many areas, including the acquisition of cognitive knowledge, critical thinking***(Kaddoura, 2010)***.

Simulation is being used in undergraduate midwifery education as a way of preparing students to practice safely it has the potential to ensure graduate midwives are capable of assuming the full mantle of responsibilities and accountabilities of a midwife on graduation ***(Lake and Innes, 2012)***.

Nurse educators must explore innovative teaching methods to connect the gap between knowledge and practice in order to enhance the students' ability to function as competent nurses. Simulation has the potential to help nurse educators better train students, especially when faculty members understand issues connected with students increased preparedness for actual clinical environments. The use of simulation has the potential to help educator better

prepare students for building nursing skill necessary for competent women care. Therefore, providing realistic situations for training nursing students in a risk free learning environment has potential for benefiting students' learning perceptions and quality of care ***(Chen-Yeh, 2016)***.

Aim of the study: -

This study aimed to assess the effect of simulation on maternity nursing students' perception, satisfaction and self-confidence

Research questions:

1) What is maternity nursing students' perception toward simulation?
2) What is maternity nursing students' satisfaction level after their simulation training?
3) What about maternity nursing student' self-confidence after simulation training?
4) Is there a relationship between maternity nursingstudents' perception, satisfaction and self-confidence?

Subjects And Method

Setting of the study: -

This study was conducted at Maternity skills laboratory, Faculty of Nursing, Benha University.

Type of sample: A convenient sample.

Sample size: -A total of 151 Maternity nursing students registered in the 3rd year at first semester in academic year 2016-2017.

Tools of data collection: -

Three tools were used for collecting data:

Tool (I): - Structured interviewing questionnaire: -

It consisted of two parts:

Part (1): -Socio demographic characteristics of the studied sample included (age, gender, marital state, place of residence).

Part (2):-Student's perception of strengths and weaknesses of simulation. It included 5items for strengths (less stressful, practice the same procedure several times, help to picture how the clinical practice in a real situation will be, help in retention of information and fun and interested), and 3items for weakness (duration was short, not really close to clinical practice and the material provided was in sufficient).

Tool (II):-Simulation Design Scale (SDS):-

This tool comprised in 5 main categories; Objectives and information (five items), student support (four items), problem solving (five items), feedback/Guide Reflection (four items) and fidelity (two items)**(Jeffries 2005)**.

Tool (III): -Student Satisfaction and Self-Confidence in Learning:

This tool is divided in to two parts; the first part satisfaction subscale comprised of (five items) to assess students' satisfaction in learning toward simulation activities. Part two self-

confidence subscale comprises of (eight items) to assess students' confidence in learning**(Jeffries and Rogers, 2007)**.

A written permission

An official permission was obtained from the Dean of the Faculty of Nursing at Benha Universityto head of department of obstetrics and women's health nursing explaining the aim of the study and time of data collection.

Validity and Reliability:

The validity of the toolssimulation design scale, student' satisfaction and self-confidence in learning was reviewed from three experts of maternal and women health nursing for content validity. The reliability of the tools was assessed by cronbach alpha test,simulation design scale (α=0.86) and student' satisfaction and self-confidence in learning (α=0.83).

Ethical considerations:

- Each student was informed about the purpose and benefit of the study at the beginning of interview and time throughout the study.
- An oral consent was obtained from each student before starting the data collection.
- Confidentiality was ensured throughout the study process, where personal data were not disclosed, and the students were assured that all data are used only for the research purpose.
- Each student was informed that participation is voluntary and withdrawal is permissible.

Statistical design:

Data were verified prior to computerized entry. The statistical package for social science (SPSS version 20) was used for that purpose, followed by data tabulation and analysis. Descriptive statistics were applied (e.g. frequency, percentages, mean, standard deviation). Test of significance (R-test were used). A statistically significant level was considered when $p \leq 0.05$, and a highly statistically significant level was considered when $p \leq 0.001$.

Results:-

Table (1): Distribution of the studied sample according to socio-demographic characteristics (n=151).

Demographic characteristics	No.	%
Age (years)		
20-	56	37.1
21-	74	49.0
22-	21	13.9
Mean ± SD	20.76 ± 0.68	
Gender		
Female	119	78.8
Male	32	21.2
Marital status		
Single	141	93.4
Married	10	6.6
Residence		
Urban	49	32.5
Rural	102	67.5

Table (2): Distribution of the studied sample according to perception level regarding simulation activities(n=151)

Perception items	High		Moderate		Low	
	No	%	No	%	No	%
Objective and information	47	31.1	83	55.0	21	13.9
Student support	50	33.1	63	41.7	38	25.2
Problem solving	36	23.8	85	56.3	30	19.9
Feedback	52	34.4	76	50.4	23	15.2
Fidelity	68	45.0	46	30.5	37	24.5

Moderate perception regarding objectives and information, student support, problem solving and feedback respectively. Meanwhile 45.0% of the students had high perception regarding fidelity.

Figure (1): Distribution of the students' perception regarding simulation activities(n=151).

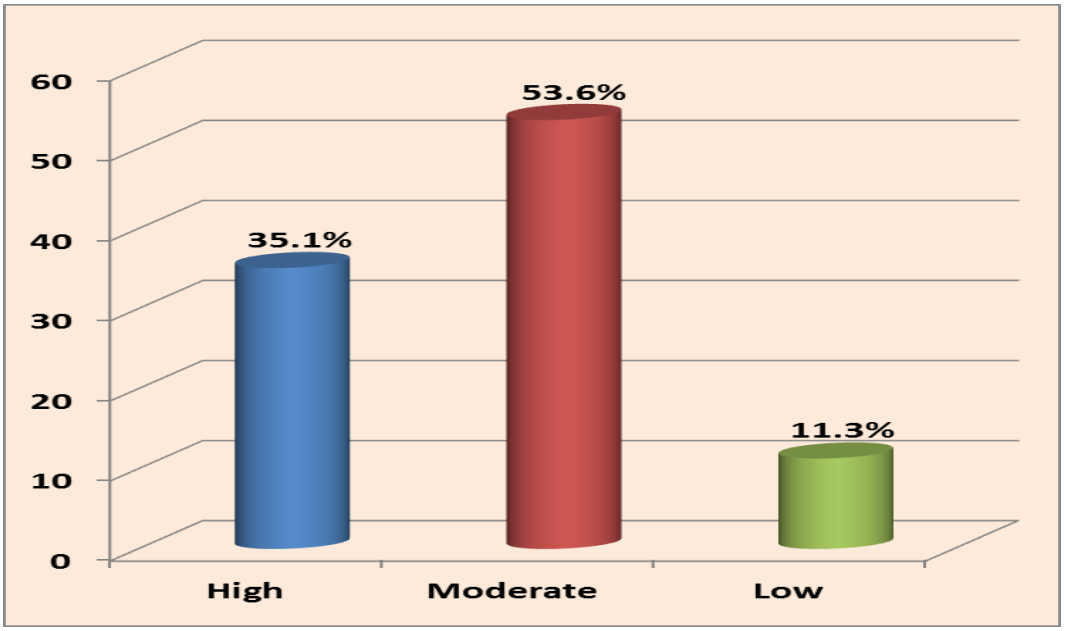

Figure (1) reveals that, 53.6% of the student had moderate level of perception regarding simulation activities. On the other hand, 11.3% had low level of perception toward simulation activities.

Table (3): Distribution of the studied sample according to satisfaction in learning towards simulation activities (n=151).

Satisfaction Items	Agree		Neutral		Disagree	
	No	%	No	%	No	%
The teaching methods used in this simulation were helpful and effective	60	39.7	75	49.7	16	10.6
The simulation provide a variety of learning materials and activities to promote learning the maternity curriculum	76	50.3	51	33.8	24	15.9
Enjoyed how instructor taught the simulation.	72	47.7	65	43.0	14	9.3
The teaching materials used in this simulation were motivating and help to learn.	69	45.7	61	40.4	21	13.9
The way instructor(s) taught the simulation was suitable to the learn way.	67	44.4	64	42.4	20	13.2

Table (3) shows that, 49.7% of the students had neutral satisfaction toward the teaching methods used in simulation were helpful and effective. While, 50.3%, 47.7%, 45.7% and 44.4% of the student's satisfaction agree regarding the simulation provide a variety of learning materials and activities to promote learning the maternity curriculum, enjoyed how instructor taught the simulation, the teaching materials used in this simulation were motivating and help to learn and the way instructor taught the simulation was suitable to the learn way respectively.

Figure (2): Distribution of the studied sample according to total satisfaction level in learning towards simulation activities (n=151)

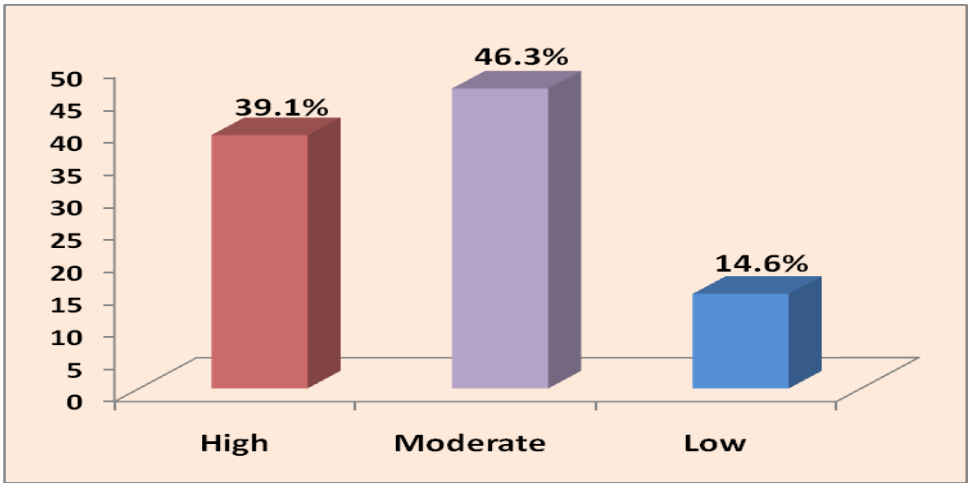

Figure (2) reveals that, 46.3% of the student had moderate satisfaction level in learning toward simulation activities. On the other hand, 14.6%of the students had low satisfaction level in learning toward simulation activities.

Table (4): Distribution of the studied sample according to self-confidence in learning towards simulation activities (n=151).

Self-confidence items	Agree		Neutral		Disagree	
	No	%	No	%	No	%
Mastering the content of the simulation activity that instructors presented to me.	59	39.1	65	43.0	27	17.9
Simulation covered critical content necessary for the mastery of maternity curriculum.	56	37.1	60	39.7	35	23.2
Developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.	48	31.8	69	45.7	34	22.5
Instructors used helpful resources to teach the simulation.	64	42.4	67	44.4	20	13.2
It is responsibility as the student to learn what need to know from this simulation activity.	86	57.0	47	31.1	18	11.9
Get help when I do not understand the concepts covered in the simulation.	57	37.7	72	47.7	22	14.6
Use simulation activities to learn critical aspects of these skills.	63	41.7	58	38.4	30	19.9
It is the instructor's responsibility to tell what need to learn of the simulation activity content during class time.	103	68.2	31	20.5	17	11.3

Table (4) displays that, 43.0%, 39.7%, 45.7%, 44.4% and 47.7% of the student had reported that neutral self-confidence toward mastering the content of the simulation activity that instructors presented to me, simulation covered critical content necessary for the mastery of maternity curriculum, developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting, instructors used helpful resources to teach the simulation and get help when do not understand the concepts covered in the simulation respectively. While 57.0%, 41.7% and 68.2% of the students had agree self-confidence toward responsibility as the student to learn what need to know from simulation activity, use simulation activities to learn critical aspects of these skills and it is the instructor's responsibility to tell what need to learn of the simulation activity content during class time respectively.

Figure (3): Distribution of the studied sample according total level of self-confidence in learning towards simulation activities (n=151)

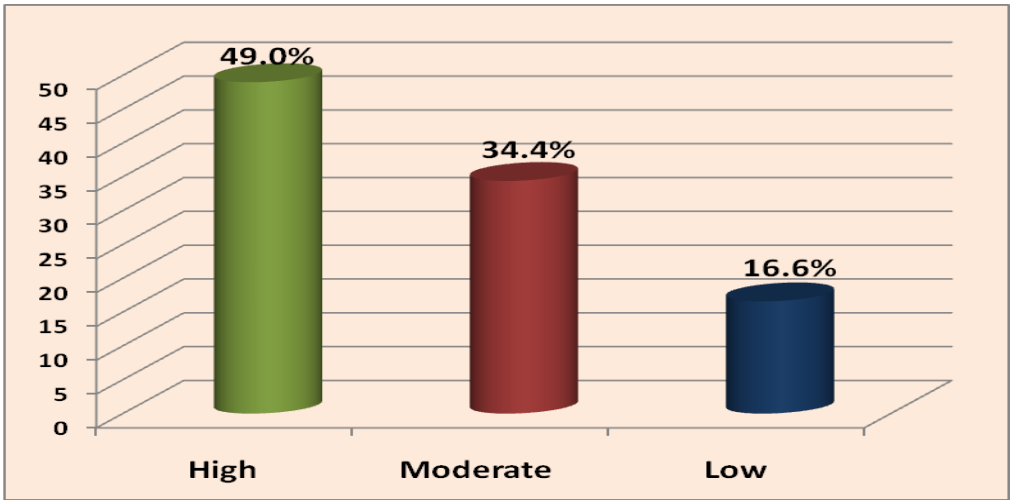

Figure (3) shows that, 49% of the students had high level of self-confidence in learning regarding simulation activities. On the other hand, 16.6% of the students had low level of self -confidence in learning regarding simulation activities.

Table (5): Correlation coefficient between total perceptions, satisfaction and self-confidence in learning towards simulation activities scores (n=151)

Variables	Total perception score	
	R	P
Total satisfaction score	0.664	0.000**
Total self-confidence score	0.705	0.000**

**** A highly statistical significant difference (P ≤ 0.001)**

Table (12): shows statistically significant positive correlation between total perception and satisfaction scores (p = 0.000). Moreover, there was a statistically significant positive correlation between total perception and self -confidence scores (p = 0.000).

Discussion

The technologies used to enable health care simulation include a wide variety of products and devices, including mannequins with varying levels of realism, computer based simulators, inert animal products, task trainers, and human cadavers. This technology is created or adapted to help address practical clinical problems when applied for training health care providers **Cook et al., (2011).**

Regarding characteristics of students, the finding of the present study revealed that less than half of maternity nursing students were in age ranged from 21< 22 years with mean age 20.76+0.68 years. This finding is in accordance with **Oh, (2015)** who conducted a study to determine the effects of simulation based

training on the learning outcome of nursing students and found that the mean age was 21.44 years old; more than half 65.72% of the students were aged 21 years old.

Regarding gender of the students, more than three quarters of the students were females. This finding agrees with **Kelly, (2015)** who conducted a study to examine the effects of simulation on nursing student knowledge, skill and attitude, reported that 96.2% of studied sample were females.

As regards marital status of the students, the finding of the present study showed that the majority of the students were single. This finding is in accordance with **Dykes, (2011)** who conducted a study to evaluate the effects of simulation on junior level baccalaureate nursing students' self-efficacy and intrinsic who reported that 74.6% of studied sample were singles.

Regarding perception of students toward simulation activities the findings of the present study showed that, more than half of the study sample, reported moderate level of perception regarding simulation activities. This may be due to the methods used in simulation were effective and give them clear ideas of procedure and the way of the instructors suitable to give information. This result is in accordance with **Shinnick et al., (2012)** who conducted a study to predict of knowledge gains using simulation in the education of prelicensure nursing students and concluded that there was a significant difference in knowledge gains with undergraduate nursing students after participation in a simulation exercise($p = 0.000$).

Moreover, **Ardic et al., (2016)** evaluated the undergraduate of nursing students' perceptions of obstetric skills following high fidelity simulation experience on 151medical and nursing student during initial clinical course. They detected increase in undergraduate student perception level and developed critical thinking skills and added that the students indicated that their total perception with the simulation applications in general 76.2%, they gained knowledge72.7%, developed critical thinking 58.9%, they performed clinical application close to reality 71.4%, and they improved their cooperation and communication skills 60.3%. According to these results, it was determined that students had positive perception about the study with simulation model.

Regarding student's satisfaction and self-confidence in learning, the results of this study showed that less than half of the students had moderate level regarding satisfaction in learning towards simulation activities and less than half of the students had high level of self-confidence in learning regarding simulation activities. This result may be attributed to the students in the simulation session take opportunity to listening, showing and performed procedure to mannequins in a simulation lap like preparing the delivery set, positioning the woman during labour, explain the labor progress to woman, examining the placenta, care of episiotomy, preparing for immediate baby care and others.

The result of this study is congruent with several studies done by **Mould et al., (2011); Hicks et al., (2009); Agha et al., (2015)** to assess the effect of simulation on student satisfaction and confidence the results indicated showed a high learner satisfaction with learning by the clinical simulation and that learner's confidence in their skills. Another study was conducted to assess the level of midwife Satisfaction and self-confidence after simulation based education by **Gudayu et al., (2015)** who showed that, more than

half (54.2%) of the participants showed higher levels of satisfaction and More than half (50.7%) of the students had increase level of self-confidence.

The result of this study is congruent with **Bambini et al., (2009)** who was conducted a study to evaluate simulated clinical experiences as a teaching method to increase the self-confidence of nursing students. The findings showed a significant increase in students' confidence in performing a postpartum exam after simulation ($p < .01$). The qualitative data indicated that the students' confidence was increased in relation to what to expect in the clinical setting. The study concluded that simulations increases student self-confidence to perform clinical skills.

Regarding the correlation between students, perception, satisfaction and self-confidence, the finding of the present study demonstrates a positive statistically significant correlation between total perception, satisfaction and self -confidence score. This finding agrees with **Lewis and Ciak's, (2011)** study investigate the impact of simulation laboratory experiences on student satisfaction, self-confidence, and cognitive learning. Findings showed a significant gain in knowledge was found ($p < .01$). The study concluded that simulation increases knowledge and student confidence in performing skills.

Conclusions

Based on the result of the study it is concluded that; maternity nursing students had moderate level of perception and satisfaction regarding simulation activities, the students had high level of self-confidence in learning regarding simulation activities. There was statistically significant positive correlation between total perception, satisfaction and self-confidence scores. Therefore, the study questions were answered.

Recommendations

In the light of the current study findings, the following recommendation can be suggested: -

-Students should be provided by variety of simulation-based education on maternity nursing skills to increase level of perception, satisfaction and self-confidence.

-It is necessary to train the maternity nursing student on simulation teaching strategies for clinical areas to mimic the reality of a clinical environment.

Future researches can be conducted: -Evaluate the effect of maternity nursing simulation laboratories versus other types of clinical teaching methods on student perception, satisfaction and self-confidence.

-A comparison of the effectiveness of simulation-based versus conventional training methods on maternity nursing student.

- Effect of simulation on maternity nursing students' skill related to emergency procedure with obstetrics women and its effect on increase satisfaction and self-confidence on satisfaction and self-confidence.

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