Pediatrics Basic Life Support Simulation training: Intern-ship Nursing Students' Performance and Self-Efficacy

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Abstract

Background: Simulation is the imitation of a real-world process over time. Theoretical education is not adequate alone for effective cardiopulmonary resuscitation applying. So that the application must be given in accordance with training and manual guidelines. **Aim:** to evaluate effectiveness of a simulation based learning on nursing intern-ship students' performance and self-efficacy regarding pediatrics basic life support. **Design:** quasi-experimental research design was used. **Setting:** study conducted at Aswan University Hospital Training Center**. Study subject:** Convenient sample of 100 nursing internship students of Nursing Faculty, Aswan University at academic year 2019-2020 from October 2019 to March2020.**Data collection tools** were included two basic tools**,** the first tool was Nursing Internship student's Performance regarding pediatric basic life support that included socio-demographic characteristics, students ' knowledge, ' practice, and the second tool was self-efficacy assessment. **Results** revealed marked increase in nurses' total knowledge, practice and self-efficacy after implementation of emergency pediatric basic life support compared to pretest with statistically significant differences. **Conclusions**: simulation improved nursing student' performance and self-efficacy regarding pediatric basic life support and enhance the simulation integration as active learning methods to improve nursing students ' performance. **Recommendations:** Repeating stimulation based learning training throughout nursing education to increase stimulation practices effectiveness.

Key words: Pediatric Basic life support, Simulation training, Performance, Self-efficacy and Intern ship nursing students.

Introduction

Pediatric basic life support (BLS) is the provision of cardiopulmonary resuscitation(CPR) for cardiac arrested children until advanced life support (ALS) can be provided, that pediatric age group must be part of a community-wide Survival Chain that links the child to survival rate better hope and effective pediatric resuscitation *(Tobase et al., 2017).*

According recommendations of American heart association AHA, every minute that CPR is delayed reduction survival rates (***Duff etal. 2018).).***So nurses who have updating knowledge and skills about BLS practice will greatly affects the consequences of ALS performance. Providing the updated data and skills training of BLS practices in education is very imperative for the staff development of nursing students, education and correlated practitioners responsibilities (***Rajeswaran et al., 2018***).

Simulation training is a technology commonly used in nursing teaching, whose use as an educational instrument has been supported to achieve a long term of learning outcomes. One of the main outcomes of nursing education is successful predict and dealing with children deterioration; the students must begin to develop skills and update their knowledge to identify indicators of deterioration and act upon them *(Kose et al., 2019).*

Nursing students should be able to start and apply effective CPR when they be gain their job in nursing. CPR is crucial for nurse's competence they can playing vital role in the golden minutes with high quality CPR that are critical for children survive chances, plus saving their life (***Haukedal et al., 2018***). Educational contributions include resuscitation training courses, learning centered on clinical resuscitation using advanced technology are crucial to emphasis efforts on training and application issues to improve educational outcomes and evaluate the efficacy of the learning strategies *(Roel& Bjørk, 2020).*

Self-efficacy defined as an individual perception capacity to perform at variant and achieved by confidence use, modify appropriate teaching strategies, understanding and experience which effects teaching behaviors and development *(Cheng et al., 2018).*

Significance

Cardiac arrest among children is a life threatening and patients have a right to high level of care quality during an arrest without it the survival chance is decreased *(Wallace et al., 2013).* Subsequently ,the nursing students should be responded to cardiac arrest situations effectively, nurses must be prepared for, and updated on life-saving skills mortality and is more present especially knowledge declined by 6 months and more than 12 months and poor retention of knowledge and skill can negatively effect on their performance and self-efficacy*(Delac et al., 2013).*

A stimulation training regarding BLS through education program and using technology can achieve High quality teaching and permit chance for nursing students to apply the procedure step by step adequately thus achieve reliable and confident results and improve nursing students' self-efficacy through repeated training in order to prompt successful responses to cardiac emergencies*(Smith et al.,2008)*,Therefore, study was conducted to evaluate effectiveness of effectiveness of a simulation based learning on nursing intern-ship students' performance and self-efficacy regarding pediatrics basic life support.

Aim of the study

To evaluate pediatrics basic life support simulation training on intern-ship nursing students' performance and self-efficacy based on the following:

1. Assess nursing internship students ' knowledge regarding pediatrics BLS.

2. .Assess nursing internship students ' practices regarding pediatrics BLS.

3. Design and apply simulation training program for nursing internship students regarding pediatrics BLS.

4. Evaluate the impact of applying simulation training program regarding pediatrics BLS on nursing internship students 'skills and self-efficacy.

Hypotheses:

1. After application of Stimulation training regarding Pediatrics Basic Life Support for nursing internship students, their scores of performance will be highly compared to pre application.

2. After The application of Stimulation training program regarding Pediatrics Basic Life Support for nursing internship students, their scores of self-efficacy will be highly compared to pre application.

Methods & Material

Design:

Quasi-experimental research design was utilized.

Setting:

This study carried out at Aswan University Hospital Training Center.

Study subject:

Convenient sample of 100 Nursing Internship Students (male and females) of Nursing Faculty, Aswan University at academic year 2019-2020.The study recruited from October 2019 to March 2020 through six months.

Tools for data collection:-

Data was gathered by two tools:

The tool I: Nursing Internship student's Performance regarding pediatrics basic life support: *questionnaire sheet was developed by the researcher after relevant literature review (Abd Elkader et al., 2020)& (Gonzi et al.,2015).*It was established for assessing nursing internship student's performance regarding pediatrics BLS pre and post application of stimulation based learning, it included three parts:

Part (1) Socio-demographic characteristics:

Socio demographic characteristics of Nursing Internship students such as: name, age, Sex, Marital status, a history of any first-aid training receiving prior to nursing in BLS practices.

Part (2) Nursing Internship students' knowledge regarding pediatrics basic life support: It was consisted of the following:

(A) **Nursing Internship students' knowledge regarding anatomy and physiology of heart and lung**: It was included 4 items: Define the heart, the location of the heart, the function the Heart Muscle and the location and function of lungs.

(B) **Nursing Internship students 'Knowledge about Cardiac arrest: it was involved nine items :** definition of Cardiac arrest,

definition of lung arrest signs of an obstruction of the airway, How can confirm cardiac arrest, the Time of Permanent brain damage begins .

(C) Nursing Internship students' Knowledge regarding paediatrics cardiac pulmonary resuscitation (CPR): it was included 22 items: Definition of Resuscitation, Definition of CPR, indications of CPR, the basic principles of CPR, the vital characteristics of first-rate CPR, characteristics of high –quality CPR, the sequences of high –quality CPR , the position of infant during CPR, the principles that follow when performed chest compression ,The site of chest compression for infant ,the compressions rates per minute, Depth of chest compression in infant, Definition of an automated external defibrillator (AED),……, ……, …………….. .

Scoring system

This part Included 35 items of multiple-choice questions that covered anatomy and physiology of heart &lung, Knowledge regarding Cardiac arrest, Knowledge regarding pediatric cardiac pulmonary resuscitation (CPR)& using an automated external defibrillator (AED). The correct answer was given the score of "one" and the wrong answer was given the score of "ZERO , satisfactory level is ≥ 70% ,unsatisfactory level was < 70%.

Part (III): Practical observational checklists related to Pediatrics BLS guideline _(Abd-Allahet al., 2017)_ & _(Qalawa et al., 2020)_. This part aim to assess nursing Internship Students' practice regarding pediatrics Basic Life Support (birth to one year old and children from one to eighteen years old) through using standardized observational checklist and post application of stimulation training regarding pediatrics BLS.

Scoring system:

The checklist sheet covered 36 items, one to two scores as zero for wrong answer (not done), one for right answer (done) then total practice scores ≥ 70 % was satisfactory, and < 70 % was unsatisfactory.

The second tool: Self efficacy assessment scale:

This tool aim to assess CPR practice retention on self-efficacy and the level of confidence of Nursing Internship students' regarding performing BLS skills pre and post application of stimulation training. This scale was developed by _(Byun, 2014), (Neumar, et al., 2015)_ & _(Park et al., 2016)_ then modified by _(Qalawa et al., 2020)_.

Scoring system:

The scale of self-efficacy included six items (one to two scores as high confidence, and low self-confidence).

Field of study

Once permission was granted \from responsible and authoritative parties at Aswan University Hospital &Nursing Faculty Aswan University, data collection initiated and contacted each potential Nursing Internship Students to

explain the aim of the study .the study was conducted from October 2019 toMarch2020 (6 months), Thursday every week. Information was collected &Pediatrics BLS program was implemented as the following:

1. **Preparatory Phase :**

Involves literature reviewing related to research problem, and theoretical knowledge of its various aspects of the study, using textbooks, evidence-based articles, periodicals and magazines in order to collect tools of this study. (August 2019 to September 2019).

2. **Pre- test phase :**

This phase was established on October 2019 and extends to November 2019 through divided the subjects sample (100) into four groups, each group was consist of 25 Nursing Internship Students and included the following:

b. *Pretest assessment* for Nursing Internship Students to complete the paediatrics BLS knowledge questionnaire.

c. *Pre observation assessment* for Nursing Internship Students in order to complete every step of BLS before paediatrics BL Straining program attend. The researcher measure the students' practical skills during students' performance of each step of BLS practice on a model observation checklist.

2. **Implementation phase:**

This phase was from November 2019 to January 2020. Depend on literature review, the researcher develop the program regarding pediatrics BLS for Nursing Internship Students At Aswan university hospital training center that include the SBL after divided into small groups includes (25) Nursing Internship Students(8 parts for 8 was 1 part weekly from 30-45min). Pictures, videos, simulation demonstration and handouts that developed in a suitable manner for every Nursing Internship Students as a source. An instructional booklet to present data for Nursing Internship Students were developed. It was given to all Nursing Internship Students. The booklet consisted of two parts:

a. **Theoretical part :**

Lecture and discussion was the teaching method of the first part. The study sample was classified to4 groups. It covered the knowledge related to anatomy and physiology of heart and lung: It was included 4 items: Define the heart, the location of the heart, the function the Heart Muscle and the location and function of lungs. Knowledge regarding Cardiac arrest: it was included nine items that included definition of Cardiac arrest, definition of lung arrest, signs of an obstruction of the airway, How can confirm cardiac arrest, the Time of Permanent brain damage begins .Knowledge regarding pediatric cardiac pulmonary resuscitation (CPR): it was included 35 items: Definition of Resuscitation, Definition of CPR ,Indications of CPR, the basic principles of CPR, the vital characteristics of first-rate CPR, characteristics of high –quality CPR,the sequences of high –quality CPR , the position of infant during CPR, the principles that follow when performed chest compression ,The site of chest compression for infant, the compressions rates per minute, Depth of chest

compression in infant,Definition of an automated external defibrillator (AED), ……

Practical part:

The 2th training part involved skills training on emergency pediatrics BLS according American Heart Association guide line 2015, the trainer established demonstration apply simulation for each step of BLS practices. Afterward, every student perform every step of pediatrics BLS in order. The practical part was repeated until the students could effectively perform every step of pediatrics BLS.

5. Post-Test phase :

Posttest stage was done 1 m post applying SBL. This phase from February 2020 to March 2020 depend on post-test assessment and post observation assessment as following:

a. **Posttest assessment:** The subjects were asked to complete pediatrics BLS knowledge sheet after the program for the second time. Pediatrics BLS knowledge tool was completed 2 w after the program.

b. **Post observation assessment:-** After complete training program, every nursing internship students asked to practice every item of pediatrics BLS in order on a model following pediatrics BLS training. The trainer assessed the nursing internship students' practice skills during students' demonstration of each step of pediatrics BLS on a model using the pediatrics BLS observation checklist.

Content validity:

The previously mentioned tools were revised by seven experts in, pediatric care nursing and critical care nursing. Based on the experts' opinions, the modification were made.

Pilot study:-

A pilot study was conducted on 10% of the study sample to obtain data regarding clarity of the questionnaire, and time needed for completing. The nursing intern ship students shared in the pilot study were not included in the study sample.

Reliability assessment:

The tool for the knowledge questionnaire was checked for reliability on 10% of the study sample. Alpha Cronbach showed that all items are significantly differed and have a correlation coefficient (r=0.87). On the other hand, the alpha for the performance checklist was (r=0.85).

Ethical consideration:-

Permission to carry out the study was taken from the administrative authorities. The researchers conform that participation is voluntary, the anonymity and the confidentiality were assured. A consent were taken from nursing internship students. Researchers were confirmed on research data confidentiality.

Statistical analysis:

All gathered data were organized, and analyzed by using computer SPSS, soft-ware program v 24, which was applied to frequency tables, mean, and standard deviation were also used,

statistical significance using chi-square test, Fisher Exact for Chi square test, independent t-test, correlation coeffecincy (R) test .

The observed differences and associations were considered as the following:

➢ Significant (S) p ≤ 0.05

➢ Non-significant (NS) p > 0.05

Results

Table (1): shows that mean age of the nursing student were 22.92±.7478years old, 77% of them were female, 52% of them had experience in basic life support practices, 59% of them were a receiving history any first-aid training, and 95% of nursing internship students were single.

Table (2): shows moderate and high statistical significant differences between pre and post program implementation related to anatomy and physiology of heart, knowledge regarding Cardiac &lung arrest, knowledge regarding pediatric CPR (cardiac pulmonary resuscitation)and Whereas there were no statistically significant related :Define lung arrest and What are the signs of an obstruction of the airway?

Table (3): illustrates that there were highly statistically significant differences in the pre and post implementation of program in all items of nursing internship students ' knowledge except position of infant when doing CPR.

Table (4): shows high statistical significant differences after application of program except Place an infant lying on the ground and Assess responsiveness of infant doesn't have a pulse.

Table (5): demonstrates highly statistical significant differences in after program implementation except place a child lying on the ground and assessment the response of the child by looking for movement and assess normal breathing.

Table (6): clarifies that there were highly statistically significant differences in post implementation of program comparing to pre implementation in all items of Self-Efficacy for BLS among nurses' student.

Fig (1): shows improvement in mean and SD after application of Self-Efficacy for BLS compared to pretest.

Table (7). Shows that there were highly statistical positive correlations between total knowledge total practice, Total Self-Efficacy, pre and post application.

Table (1): Frequency distribution of Socio-demographic characteristics of Nursing Internship Students (n=100).

Socio- demographic characteristics	N	%
Age (years)		
22	32	32.0
23	44	44.0
24	24	24.0
Mean ±SD	22.9 ±0.7	
Sex		
Male	23	23.0
Female	77	77.0
Marital status		
Single	95	95.0
Married	5	5.0
First-aid training history		
Yes	59	59.0
No	41	41.0
Experience in basic life support practices:		
Yes	52	52.0
No	48	48.0

Table (2): Frequency distribution of Nursing Internship Students' knowledge regarding pediatrics Basic Life Support n=100

Students' knowledge regarding Pediatric BLS	Pre-test				Posttest				X2	p. Value
	Correct Answer		Incorrect answer		Correct answer		Incorrect Answer			
	N	%	N	%	N	%	N	%		
Knowledge regarding Anatomy and physiology of heart& lung										
Define the heart.	100	100	0	0	100	100	0	0	---	---
Location of the heart.	89	89.0	11	11.0	100	100	0	0	11.58	0.001
Function the Heart Muscle.	85	85.0	15	15.0	97	97.0	3	3.0	8.747	0.003
Location and function of lungs.	86	86.0	14	14.0	96	96.0	4	4.0	6.074	0.013
Total	**90**	**90.0**	**10**	**10.0**	**98**	**98.0**	**2**	**2.0**	**5.645**	**0.01**
Knowledge regarding Cardiac &lung arrest										
Definition of Cardiac arrest.	43	43.0	57	57.0	66	66.0	43	43.0	6.407	0.011
Define lung arrest.	65	65.0	35	35.0	72	72.0	28	28.0	1.130	0.181
Signs of airway obstruction.	73	72.0	27	27.0	82	82.0	18	18.0	2.311	0.12
How can confirm cardiac arrest.	64	64.0	36	36.0	78	78.0	22	22.0	4.736	0.021
Time of Permanent brain damage.	47	47.0	53	53.0	74	74.0	26	26.0	15.176	0.001
Time of brain death.	58	58.0	42	42.0	74	74.0	26	26.0	5.676	0.012
Define of Resuscitation.	34	34.0	66	66.0	66	66.0	34	34.0	20.378	0.001
Define of Defibrillation.	25	25.0	75	75.0	54	54.0	46	46.0	17.508	0.001
An automated external defibrillator.	25	25.0	75	75.0	51	51.0	49	49.0	14.275	0.001
Total	**58**	**58.0**	**42**	**42.0**	**74**	**74.0**	**26**	**26.0**	**5.676**	**0.012**
Knowledge regarding pediatric CPR (cardiac pulmonary resuscitation)										
Define CPR.	57	57.0	43	43.0	77	77.0	23	23.0	9.000	0.002
Indications of CPR	57	57.0	43	43.0	64	64.0	36	36.0	1.020	0.31
basic principles of CPR	22	22.0	78	87.0	53	53.0	47	47.0	20.399	0.001
Vital characteristics of first-rate CPR.	33	33.0	67	67.0	61	61.0	39	39.0	15.658	0.001
Characteristics of high –quality CPR.	31	31.0	69	69.0	66	66.0	34	34.0	24.399	0.001
Sequences of high – quality CPR.	24	24.0	76	76.0	54	54.0	46	46.0	18.821	0.001

Chi-SquareTests   nonsignificance*p>0.0   **= highly significance *p≤0.01 Significance =*p<0.05

Table (3): Frequency distribution of Nursing Internship Students' knowledge regarding Pediatrics Basic Life Support n=100, cont.

Students' knowledge regarding pediatric BLS	Pre-test				Post-test				X2	P Value
	Correct Answer		Incorrect answer		Correct Answer		Incorrect Answer			
	N	%	N	%	N	%	N	%		
Position of infant during CPR.	89	89.0	11	11.0	91	91.0	9	9.0	0.221	0.407
Principles of chest compression.	36	36.0	64	64.0	67	67.0	33	33.0	19.141	0.001
Area of chest compression for infant.	71	71.0	29	29.0	82	82.0	18	18.0	3.348	0.06
Compressions rates per minute.	37	37.0	63	63.0	62	62.0	38	38.0	12.439	0.001
Depth of chest compression in infant.	44	44.0	56	56.0	64	64.0	36	36.0	8.011	0.003
Chest compression if one provider.	38	38.0	62	62.0	60	60.0	40	40.0	9.635	0.001
Chest compression if two providers.	55	55.0	45	45.0	71	71.0	29	29.0	5.464	0.014
Place of check the pulse for infant.	38	38.0	62	62.0	81	81.0	19	19.0	38.173	0.001
Depth of chest compression in infant.	31	31.0	69	69.0	62	62.0	38	38.0	19.218	0.001
How long check for a carotid pulse for children?	32	32.0	68	68.0	55	55.0	45	45.0	10.708	0.001
Depth of chest compression.	34	34.0	66	66.0	64	64.0	36	36.0	17.917	0.001
Describe the recovery position.	53	53.0	47	47.0	78	78.0	22	22.0	13.76	0.001
The indicators of the effectiveness of CPR.	26	26.0	74	74.0	58	58.0	42	42.0	20.91	0.001
When you should stop CPR.	38	38.0	62	62.0	73	73.0	27	27.0	24.67	0.001
Precautions that you follow during CPR.	33	33.0	67	67.0	63	63.0	37	37.0	17.93	0.001
The complications of CPR.	33	33.0	67	67.0	61	61.0	39	39.0	15.65	0.001
Total	**38**	**38.0**	**62**	**62.0**	**64**	**64.0**	**36**	**36.0**	**13.45**	**0.001**
Means ±SD total score (51-102) marks	68.50±4.14				80.23±3.39					**0.001**

Chi-SquareTests and   independent t-test   nonsignificance*p>0.0   **= highly significance *p≤0.01 Significance =*p<0.05

Table (4): Frequency distribution of Checklist observation regarding infant Basic Life Support for Nursing Internship Students N=100

Steps	Pre test				post test				X2	p. value
	Done		Not done		Done		Not done			
	N	%	N	%	N	%	N	%		
Infant CPR Steps (1day to 1year) CABD										
- Place an infant on the ground.	5	5.0	95	95.0	97	97.0	3	3.0	168.501	0.001
- Assessment responsiveness.	58	58.0	42	42.0	79	79.0	21	21.0	10.168	0.001
Look at the chest for movement and normal breathing.	22	22.0	78	78.0	64	64.0	36	36.0	28.223	0.001
Circulation										
Check brachial or femoral pulse for 5-10seconds.	58	58.0	42	42.0	79	79.0	21	21.0	10.168	0.001
- If no a pulse: start 5 CPR (2 minutes).	84	84.0	16	16.0	90	90.0	10	10.0	0.896	0.147
Chest Compressions										
- Make 100 to 120c/m. (30 c/15 to 18s.)	22	22.0	78	78.0	64	64.0	36	36.0	35.805	0.001
- Technique of Chest Compressions	28	28.0	72	72.0	65	65.0	35	35.0	27.377	0.001
Airway										
- Put your thumbs on the child upper cheek.	21	21.0	79	79.0	88	88.0	12	12.0	90.061	0.001
- Put your fingers on the jaw lower rami	44	44.0	65	65.0	81	81.0	19	19.0	90.061	0.001
To advance the jaw forward make anterior pressure	44	44.0	65	65.0	82	82.0	18	18.0	30.819	0.001
Breathing										
If a pulse: - Immediately rescue breaths.	45	45.0	55	55.0	67	67.0	33	33.0		0.001
If no a pulse:										
- Start CPR	45	45.0	55	55.0	83	83.0	17	17.0	9.772	0.001
- Make a seal between your mouth and nose of the patient.	44	44.0	56	56.0	82	82.0	18	18.0	30.819	0.001
- Rescue breath (small and last for 1s).	40	40.0	60	60.0	84	84.0	16	16.0	40.881	0.001
- Watch for chest rise.	35	35.0	65	65.0	80	80.0	20	20.0	41.225	0.001
- Provide 12-20 rescue breaths per minute.	37	37.0	63	63.0	65	65.0	35	35.0	15.608	0.001
Recovery position for infants	43	43.0	57	57.0	70	70.0	30	30.0	14.756	0.002
Defibrillate(Attachment of AED)	47	47.0	53	53.0	64	64.0	36	36.0	5.822	0.015

Chi-SquareTests   nonsignificance*p>0.0**= highly significance *p≤0.01 Significance =*p<0.05

nonsignificance*p>0.0

  **= highly significance *p≤0.01 Significance =*p<0.05

Table (5): Frequency distribution of Check list observation regarding a child Basic Life Support for Nursing Internship Students. N=100

Steps	Pre test				post test				X2	P. value
	Done		Not done		Done		Not done			
	N	%	N	%	N	%	N	%		
CPR: for a child more than 1 years old to puberty CABD										
Place a child on the ground.	86	86.0	14	14.0	90	90.0	10	10.0	0.754	0.257
Assessment responsiveness.	79	79.0	21	21.0	94	94.0	6	6.0	9.586	0.002
Look at the chest for movement and normal breathing.	79	79.0	21	21.0	91	91.0	9	9.0	5.619	0.017
Circulation:										
Check a carotid pulse for 5-10seconds.	58	58.0	42	42.0	79	79.0	21	21.0	10.16	0.001
If pulse: rescue breathing portion of the algorithm.	26	26.0	74	74.0	65	65.0	35	35.0	30.51	0.001
If no pulse: start 5 CPR (2 minutes)	64	64.0	36	36.0	82	82.0	18	18.0	8.178	0.003
Chest Compressions:										
Make 100 to 120c/m. (30 c/15 to 18s)	22	22.0	78	78.0	64	64.0	36	36.0	35.80	0.001
Technique of Chest Compressions	28	28.0	72	72.0	65	65.0	35	35.0	27.377	0.001
Airway										
Put your thumbs on the child upper cheek.	21	21.0	79	79.0	88	88.0	12	12.0	90.06	0.001
Put your fingers on the jaw lower rami	44	44.0	65	65.0	81	81.0	19	19.0	29.05	0.001
To advance the jaw forward .make anterior pressure	44	44.0	65	65.0	82	82.0	18	18.0	30.81	0.001
Breathing										
If a pulse: - Immediately rescue breaths.	45	45.0	55	55.0	67	67.0	33	33.0	9.772	0.001
If no a pulse:										

Steps	Pre test				post test				X2	P. value
	Done		Not done		Done		Not done			
	N	%	N	%	N	%	N	%		
- Start CPR	47	47.0	53	53.0	71	71.0	29	29.0	11.84	0.001
- Make a seal between your mouth and nose of the patient.	35	35.0	65	65.0	70	70.0	30	30.0	24.43	0.001
- Rescue breath (small and last for 1s).	40	40.0	60	60.0	84	84.0	16	16.0	40.88	0.001
- Watch for chest rise.	35	35.0	65	65.0	80	80.0	20	20.0	41.22	0.001
- Provide 12-20 rescue breaths per minute.	37	37.0	63	63.0	65	65.0	35	35.0	15.60	0.001
Recovery position for infants	38	38.0	62	62.0	71	71.0	29	29.0	21.84	0.001
Defibrillate(Attachment of AED)	47	47.0	53	53.0	73	73.0	27	27.0	14.01	0.001
Total mean ±SD(75 – 150 marks)	123.80±14.56				144.54±4.08					0.001

Chi-SquareTests and   independent t-test   nonsignificance*p>0.0   **= highly significance *p≤0.01
Significance =*p<0.05

Table (6): Frequency distribution of Self-Efficacy regarding pediatrics Basic life support for Nursing Internship Students. N=100

Items	Pre test				post test				X2	P. value
	Done		Not done		Done		Not done			
	N	%	N	%	N	%	N	%		
- Remember that a patient is Unresponsive	9	9.0	91	91.0	69	69.0	31	31.0	75.284	0.001
- . Remember that a patient is not breathing normally	14	14.0	86	86.0	63	63.0	37	37.0	50.449	0.001
- Give ventilations that make the chest rise	13	13.0	87	87.0	61	61.0	39	39.0	49.174	0.001
- Provide chest compressions effectively.	18	18.0	82	82.0	63	63.0	37	37.0	41.807	0.001
- Put the AED pads in the correct Place	19	19.0	81	81.0	60	60.0	40	40.0	34.995	0.001
- Know the AED operation	24	24.0	76	76.0	69	69.0	31	31.0	40.496	0.001
Total means ±SD(6-12marks)	6.97±1.05				9.85±1.39					0.001
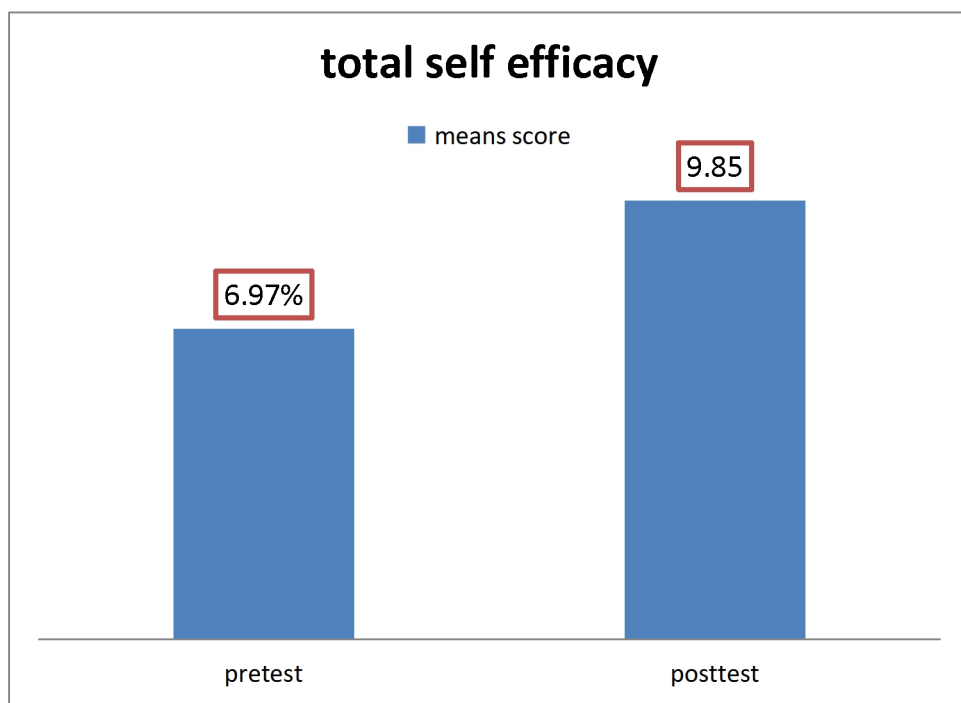
Figure (1): Total Self-Efficacy of BLS.

Table (7): Correlation between Self-Efficacy, Knowledge and practice pre and post ABLS (N=100)

Variables	Pretest			Variables	Posttest		
	Knowledge score	Self-Efficacy score	CPR Practice score		Knowledge score	Self-Efficacy score	CPR Practice score
	r [p]	r [p]	r [p]		r [p]	r [p]	r [p]
Knowledge score		0.014 [0.889]	0.022 [0.829]	Knowledge score		0.002 [0.987]	-0.086 [0.394]
Self-Efficacy score	0.014 [0.889]		-0.064 [0.526]	Self-Efficacy score	0.002 [0.987]		0.280 [0.005]
CPR Practice score	0.022 [0.829]	-0.064 [0.526]		CPR Practice score	-0.086 [0.394]	0.280 [0.005]	

Discussion

Although learning by doing is a long established ways for help in information acquisition, it is not always practical or cost effective to engage in skill training with real situation due to the increased required clinical competence for patients care. As, patient simulators provide a very realistic alternative condition *(Doerr & Murray, 2008) & (Liaw et al., 2012).*

Latest studies revealed that simulation update nursing, perilous thinking, knowledge, practice, communication practices, increase self-efficacy and clinical decision making. Simulation is an active method used to link real clinical conditions in a safe area, that encourage knowledge and psychomotor skills resuscitation development *(Waznonis,2015).*So the present study conducted to evaluate pediatrics basic life support simulation training on nursing intern-ship students' performance and self-efficacy regarding.*.*

Regarding nurses' knowledge about pediatric BLS before and after implementation, the findings revealed that the majority of nurses' knowledge were increased after implementation. This finding might be because of that simulations increase critical thinking talents, students learning experience, and skill performance. Also the improvement in students' knowledge may be due to the use of combination of various instructional methods in addition to simulation.

The present study is congruent with *Doerr & Murray, 2008* whose study was how to build a successful simulation strategy and found that the study group had a significant higher post-test mean score than the control group for knowledge and clinical performance. Also this result is agree with *Partiprajak &Thongpo,* 2016 Presented that retention of basic life support knowledge, self-efficacy and chest compression performance, who found that CPR training has a vital direct effect on knowledge. Study by *Pauly-O'Neill& Prion, 2013, who* demonstrated the using integrated simulation in a nursing program and revealed that there was a rise in knowledge about essential medication administration skills for the pediatric population after simulation based learning. In addition, the study of *Babenko-Mould et al., 2015,* suggested that nursing students acquired necessary knowledge and skills through the combination of simulated practice and participation in an actual vaccination clinic.

From point of researcher's insight, the multi teaching strategies used in this study were effective in improving knowledge of the nursing students and reinforced their learning.

The current study results are incongruent with *Shepherd et al., 2013* who determined that there was no significant difference in cognitive gains of the two groups of nursing students exposed to simulation and traditional teaching in their study titled investigating the use of simulation as a teaching strategy. Also, the finding was not the same titled evaluation of staff's retention of ACLS and BLS skills done by *Srinivas et al., 2014* which mentioned that the nursing student's knowledge about BLS is inadequate.

Regarding nurses' practice of pediatric BLS, the finding revealed that

the majority of nurses were improved after simulation training implementation. *From the researcher insight*, simulation is a corner stone in improving nursing student's skills, the training benefits in enhancing practice and simulation tend to be a brilliant educational application to enhance nurses learning experience satisfaction, and improve skill performance.

These results are congruent with **Stephens& Mosser, 2013** who made a survey of basic life support awareness among final year undergraduate medical, dental, and nursing students found that the use of simulation technology and debriefing techniques at the pediatric Peripheral Intravenous (PIV) insertion program, PIV insertion skills improved, as evidenced by a decreased number of pediatric PIV insertion attempts.

This study is in agreement with **EomKim et al., 2010** who confirmed that the teaching way using standardized patients was more benefit than the traditional method to nursing students' competence development, and problem solving. Thus, it is needed to develop different scenarios, to measure their effectiveness, and to apply standardized patients for health assessment. The training conducted in the simulated environment may offer an additive benefit to the traditional instruction and enhance performance. Simulation training program improved the performance of nursing internship students regarding pediatric basic life support compared to traditional teaching.

The current study findings was agree with **Sankar et al., 2013** who study simulation to improve pediatric patient outcomes and state that practices scores

immediately improved , also **Maurya, 2015**mentioned that simulation group improved after teaching. Additionally, **Sankar et al., 2011**found improve in practice score more than 84%.In relation to the total perceived self-efficacy of nursing internship students, the current study showed that the students reported increased self-efficacy after simulation-based learning than traditional teaching. Also the current study mentioned highly statistically significance difference pre and post in all aspects of ABLS Self-Efficacy. This might related to nursing internship students received simulation achieved more self-efficacy perception that increase knowledge and self-efficacy.

The results agree **with Kim et al., 2011** that title was the relationship among learning satisfaction, learning attitude, self-efficacy and the nursing students' academic achievement after simulation-based education and found that simulation-based learning was a useful method for practical ability and this is good to acquire both knowledge and technique. Moreover, the study of **Pauly-O'Neill & Prion 2013** suggested that nursing students acquired necessary knowledge and skills and had high self-efficacy after simulation-based learning. The findings of **Tuttle, 2009** also stated that the experimental group had a higher clinical self-efficacy score.

Finally, Regarding correlation between nurse internship students' self-efficacy, knowledge and practice pretest, there were highly positive correlation between nurse internship students' self-efficacy and, total practice .The result in the same line with **Birkeland, 2014** who study BLS Knowledge and Skill Retention and Increased Self-Efficacy for

Rural Health Care Providers and found that there was increase and highly statistically differences in self-efficacy of nurses' posttest. Additionally, *Akhu-Zaheya et al., 2013* mentioned that there was a significantly difference in self-efficacy between simulations vs. traditional ways.

From the researchers' point of view, the remembering of concepts previously presented, and engaged complex reasoning incorporate forcing together by driving leaners to face challenges cues that processes achieved by a high degree of realism in simulation training program that reflected on improving the students' performance efficacy.

This study's results are predicted to be the basis of improving the performance and self-efficacy of nursing internship students' regarding pediatrics basic life support that providing a golden chance to improve the competency and retention of CPR skills .

Conclusion:

The current study, concluded that there was a significant development in nursing internship students' performance regarding pediatrics basic life support after simulation training program. The student's self-efficacy level was very high after simulation training and they found it an effective instructional technique.

Recommendations:-

Based on the present study results, the following recommendations are suggested:

- Nursing training programs should use simulation training of

- undergraduate, and support the introduction of SBL as a vital step when develop curriculum

- Faculty of nursing at different universities should be ready to adopt simulation technology.

- Further researches need to be conducted to the evaluate effect of simulation training program for advanced CPR.

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