

AN EXPERIMENTAL STUDY TO ASSESS AND COMPARE THE EFFECTIVENESS OF SIMULATION BASED EDUCATION WITH LECTURE METHOD ON KNOWLEDGE AND PRACTICE OF ADVANCED CARDIAC LIFE SUPPORT (ACLS) AMONG FINAL YEAR UNDERGRADUATE NURSING STUDENTS

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Abstract	<i>The present study titled “An experimental study to assess and compare the effectiveness of simulation based education with lecture method on knowledge and practice of advanced cardiac life support among final year undergraduate nursing students” was undertaken. The study was carried out at college of nursing, Dr. Ram ManoharLohia Hospital, New Delhi. The data was collected from the homogenous group of 50 nursing students with the help of pretested, self-administered, structured questionnaire and checklist. Data was analyzed and interpreted using descriptive & inferential statistics. The findings of the studied inferred that there was positive effect of simulation based education on the knowledge and practice of ACLS among final year undergraduate nursing students as evident by high mean post test score of experimental group as compared to control group. Study concluded the effectiveness of simulation based practice in enhancing the knowledge & skills of the nursing students.</i>
Keywords	<i>simulation, nursing, knowledge, practice, advanced cardiac life support</i>

INTRODUCTION

Health is considered as one of the most important values in life. The true fulfillment of life begins with good health. Health is viewed as a continuum on which optimal wellness at one end and illness at the other end. Every person is somewhere on the continuum. As one's health state changes the location on the continuum changes.¹

There are many emergencies in the life of human being like stroke, poisoning, accidents, suicide, injury, medication error, shock and cardiac arrest. Among these cardiac arrest deaths remain major cause of mortality. Cardiac arrest can result from a primary airway obstruction, respiratory inadequacy and cardiac abnormalities or can be secondary to a life – threatening illness that comprises the airway, breathing or circulation. The three basic mechanisms of cardiac arrest are ventricular fibrillation, a systole and pulse less electrical activity. Ventricular fibrillation is the most common cause of cardiac arrest.²

Cardiopulmonary resuscitation is one of the major achievements in modern medicine. Among all organs brain withstands hypoxia the least. So within 15-30 seconds of cardiac arrest the person becomes unconscious and within 4 minutes brain gets irreversibly damaged. The priority in resuscitation is to get some oxygen to the brain. This stresses the importance that any resuscitation has to be done in 4 minutes to have a cognitive existence. After 4 minutes brain is already damaged and victim will have vegetative existence without higher function and would be a burden on the family with economic strain.³

Advanced Cardiovascular Life Support (ACLS) training is a specific set of protocols and practices that are taught to medical professionals so that they can handle a wide range of emergency situations. ACLS is distinct from Basic Life Support (BLS) training, because it covers a much broader range of possible problems. It also focuses more on the stabilization of a patient before

and after an emergency.⁴

Clinical education in nursing aims to integrate theoretical knowledge from books into practical knowledge in real-life situations and to help students develop their problem-solving skills. Due to rapid changes in clinical placements, patient safety issues, and ethical concerns, students' direct experience with patient care and opportunities to handle problem-based clinical situations have been diminished.⁵

Simulation-based clinical education is a useful pedagogical approach that provides nursing students with opportunities to practice their clinical and decision-making skills through varied real-life situational experiences, without compromising the patient's well-being.⁶

The advantages of simulation-based educational interventions include the ability to provide immediate feedback, repetitive practice learning, the integration of simulation into the curriculum, the ability to adjust the difficulty level, opportunities to individualize learning, and the adaptability to diverse types of learning strategies.⁷

Simulation-based clinical education in nursing refers to a variety of activities using patient simulators, including devices, trained persons, lifelike virtual environments, and role-playing, not just handling mannequins. With realistic clinical scenarios, simulation-based educational interventions in nursing can train novice as well as experienced nurses, helping them develop effective non-technical skills, practice rare emergency situations, and providing a variety of authentic life-threatening situations.

Simulation is a technique for practice and learning that can be applied to many different disciplines and types of trainees. It is a technique (not a technology) to replace and amplify real experiences with guided ones, often "immersive" in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion. "Immersive" here implies that participants are immersed in a task or setting as if it was the real world.⁸

Simulation-based learning can be the answer to developing health professionals' knowledge, skills, and attitudes, whilst protecting patients from unnecessary risks. Simulation-based medical education can be a platform for learning to mitigate ethical tensions and resolve practical dilemmas. Simulation based training techniques, tools, and strategies can be applied in designing structured learning experiences, as well as be used as a measurement tool linked to targeted teamwork competencies and learning objectives. Simulation-based learning itself is not new. It has been applied widely in the aviation industry (also known as CRM or crew resource management), anesthesiology, as well as in the military. It helps to mitigate errors and maintain a culture of safety, especially in these industries where there is zero tolerance for any deviation from set standards.⁹

Simulation has also begun to change much of the ways in which medicine is taught and how trainees and junior doctors acquire the relevant skills. Medical, nursing, and other health care staff also have the opportunity to develop and refine their skills, repeatedly if necessary, using simulation technology without putting patients at risk.¹⁰

Simulation training centers, with their new techniques and equipment, offer unique opportunities for dynamic, complex, and unanticipated medical situations to be practiced and managed. In both aviation and health care domains, human performance is strongly influenced by the situational context, i.e., the interaction between the task, the environment, and the behavior of team members. In aviation, more than 50 years of research has shown that superior cognitive and technical skills are not enough to ensure safety: effective teamwork skill is a must. Similar observations are also now being made in the practice of medicine.¹¹

The ability to respond quickly and effectively to a cardiac arrest situation rests on nurses being competent in the emergency life-saving procedure of cardiopulmonary resuscitation. Poor knowledge and skill retention following cardiopulmonary resuscitation training for nursing and medical staff has been documented over the past 20 years. Cardiopulmonary resuscitation

training is mandatory for nursing staff and is important as nurses often discover the victims of in-hospital cardiac arrest.¹²

NEED OF THE STUDY

Advanced Cardiac Life Support or ACLS is a procedure for managing patients who are experiencing severe medical emergencies such as cardiac arrest. It is the training and acquiring of skills necessary for use in the protocol properly and safely. Because it involves sophisticated medical certification, skills and training it is only accessible by medical professionals such as nurses and doctors.¹³ ACLS is an advanced, instructor-led classroom course that highlights the importance of team dynamics and communication, systems of care and immediate post-cardiac-arrest care. It also covers airway management and related pharmacology. In this course, skills are taught in large, group sessions and small, group learning and testing stations where case-based scenarios.¹⁴

Based on the above findings, reviews and the personal clinical experience in hospital, it was found that most of the nursing students are unaware of their role in ACLS and they had an opinion that only the doctors are eligible to perform ACLS. Hence, there was a felt need to conduct a simulation programme for internship nursing students who were going to be a future nurses to equip them with basic knowledge regarding ACLS as to impart quality care in order to save the lives of the individuals.

OBJECTIVES OF THE STUDY

GENERAL OBJECTIVE

- To assess and compare the effectiveness of simulation based education with lecture method on knowledge of Advanced Cardiac Life Support among final year undergraduate nursing (internship) students.

SPECIFIC OBJECTIVES

1. To determine the pre-test level of knowledge regarding ACLS among nursing students.
2. To find out the effectiveness of SIMULATION based education on ACLS among the nursing students.
3. To explore the association between pre-test and post-test level of knowledge among nursing students.
4. To determine memory retention and confidence of nursing students after simulation based education on ACLS.
5. To evaluate the practical application of knowledge after simulation based education.

HYPOTHESIS

H₀: There is no relationship between knowledge and practice score of simulation based education on advanced cardiac life support.

H₁: The mean post-test knowledge scores of students regarding ACLS after administration of simulation based education would be higher than their mean post-test knowledge score after lecture method as evident from structured knowledge questionnaire.

H₂: The mean post-test practice score of students regarding advance cardiac life support after administration of simulation based education would be higher than their mean post-test practice score after lecture method as evident from skill assessment practice test.

H₃: There would be significant positive relationship between post-test knowledge and practical skills followed by the Simulation based education as compared to lecture method.

ASSUMPTIONS

1. Simulation intended to contribute to development of existing knowledge and practical application of ACLS in undergraduate nursing students
2. Nursing students might have some knowledge regarding ACLS.
3. Undergraduate nursing students might have been interested to know more about ACLS.
4. Simulation is an accepted teaching strategy in improving knowledge and skill.
5. Level of students’ knowledge and practice could be measured using a structured knowledge questionnaire and practice test.

DELIMITATION

The study was limited only to the final year undergraduate students studying in a selected nursing college in Delhi & those students who were willing to participate in the study.

METHODOLOGY

Study approach was true experimental research approach. Research design selected for the study was Pre-test, Post-test design. Sample technique employed was convenience sampling. Total sample size was 50 final year (internship) nursing students. Randomization technique used was computer generated table of random numbers with block randomization to equalize subjects in both the groups. Subjects were randomized into two groups i.e.; experimental and control groups. Pretest administered to both the groups to assess the baseline knowledge and skills. Consecutively, experimental group administered with simulation based learning and control group administered with lecture based learning on ACLS. Later, both the groups were undertaken for posttest.

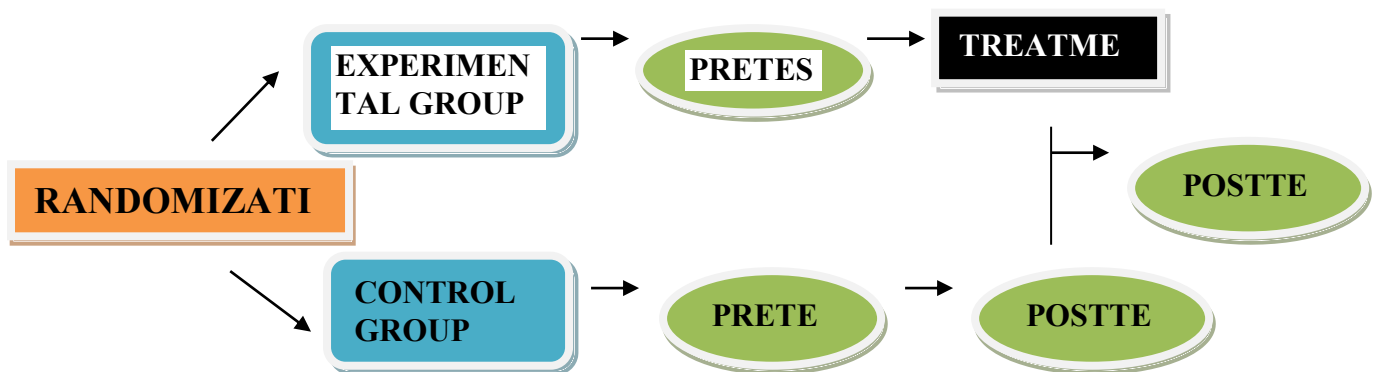


Figure 1: True Experimental Research Design (Pre-test - Post-test Research Design)

Thus the research design can be represented as:

For Experimental Group (E),



For Control Group (C),

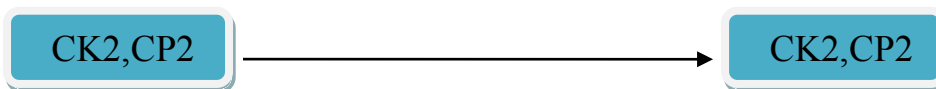


Figure 2: True Experimental Research Design for this study

Key:

EK1: It is the knowledge of the Experimental group regarding Advanced Cardiac Life Support before administration of the Simulation Based Education.

EP1: It is the practice score of Experimental group regarding ACLS before administration of

simulation based practice.

S: It is the simulation based education and practice provided to the Experimental group regarding ACLS.

EK2: It is the knowledge score for the Experimental group regarding ACLS after administration of the Simulation Based Education.

EP2: It is the practice score of Experimental group regarding ACLS after administration of simulation based practice.

CK1: It is the knowledge of the Control group regarding ACLS.

CP2: It is the practice score of Control group regarding ACLS.

Present study conducted at classroom, college of nursing, Dr. RML hospital and Trauma Centre-BLS & ACLS room of Dr.RML Hospital, New Delhi. The rationale for the selection of this hospital was familiarity with setting, easy transport facility, administrative approval and availability of subjects.

In the present study, population comprised of nursing students (interns) of Dr. RML Hospital, New Delhi.

SAMPLING CRITERIA

Final year nursing students who were willing to participate in this study & available at the time of data collection.

SAMPLING TECHNIQUE

Non-probability, Purposive sampling technique was used to select the sample. Sample size comprised of total 50 subjects for the final study. All the subjects who were fulfilling the sampling criteria were included in the study.

DATA COLLECTION TOOLS & TECHNIQUES

1. Structured knowledge questionnaire for assessing the knowledge.
2. Skill assessment practice test to evaluate the practice of ACLS.

DESCRIPTION OF TOOL

1. DEVELOPMENT OF STRUCTURED KNOWLEDGE QUESTIONNAIRE

A knowledge questionnaire for assessing knowledge related to Advanced Cardiac Life support for final year, B.sc (Hons) Nursing students was developed.

The following criteria were taken under consideration for tool development:

- Review of research literature carried out in the area related to the Simulation and ACLS.
- Opinion of experts
- Personal experience in the field
- Previous knowledge of subjects
- Practical experience
- Exposure to field situation

CONTENT OF THE QUESTIONNAIRE

- **SECTION 1:** Consisted of structured knowledge questionnaire including 25 knowledge items of multiple choice question type (MCQ). Each item has 1 possible answer and each correct answer carries 1 score.
- **SECTION 2:** Consisted of skill (hands on) assessment practice test. It included 4 parts namely Cardio pulmonary Resuscitation, Bag and Mask ventilation, Automated External Defibrillator, Intubation and each part consisted of 5,2,2,5 subparts respectively. All the subparts were marked ranging from 5-1 based on expertise in skills of the student.

2. SKILL ASSESSMENT PRACTICE TEST

Skill assessment practice test was developed to assess the practical skills of students regarding Advance Cardiac Life Support. It consisted of total 4 items. The subparts of each item were marked ranging from 5-1 based on their skill which includes:

- i. Cardio-pulmonary Resuscitation
- ii. Bag and Mask
- iii. Automated External Defibrillator
- iv. Endo tracheal -Intubation

DEVELOPMENT OF CRITERIA FOR SKILL ASSESSMENT PRACTICE TEST

The criteria for the development of practice test was consisted of the following headings:

- Selection of material
- Language
- Feasibility
- Organization
- Presentation
- Basis of assessment
- General feature of test

DESCRIPTION OF EDUCATION ON ACLS

For the purpose of teaching **ACLS and BLS survey** a class room teaching was planned. This teaching was given to the experimental group consisting of 20 samples. The activities included for serving this purpose were following:

1. Preparation of Lesson Plan for teaching:

A comprehensive lesson plan was developed on ACLS including the topics:

- Introduction on ACLS and BLS
- Difference between ACLS and BLS
- Procedure of CPR and timing of CPR
- Application of Bag and Mask ventilation
- Management of unconscious patient.
- AED & its usage
- Drugs used in emergency

2. Setting for the teaching:

Teaching was given in the classrooms of college of nursing, Dr. RML hospital by using traditional teaching method which was supplemented by the use of audio-visual aids.

- Method of teaching : Lecture cum discussion method
- Audio-visual aids used: Power-Point Presentation.
- Students: 25 final year undergraduate nursing students in the control group.

DESCRIPTION OF SIMULATION BASED PRACTICE

1. Preparation for Simulation Based Education

Simulation is a training and feedback method in which learners practice tasks and processes in lifelike circumstances using models or virtual reality, with feedback from observers, peers, actor-patients, and video cameras to assist improvement in skills. Manikins and several equipments were used for developing the simulation based education in a classroom setting. A PowerPoint presentation incorporating the fundamentals of ACLS was played in the background during demonstration. Simulation based education was only given

to the Experimental group consisting of 25 final year undergraduate nursing students. A return demonstration session was conducted followed by the simulation class and the knowledge and skills of the experimental students were assessed herewith.

2. The methods of simulation used for the study were the following :

➤ Task Trainer Simulation

Task trainer simulation allows the student to practice basic skills on task trainers to ensure patient safety and comfort. Nurses and students attain individual improvement from the ability to practice a variety of skills, such as suturing, dissection, and pattern cutting, and allow physicians in training to improve their visual, tactile and coordination skills. These training procedures range from the basics, such as drawing blood to more sophisticated procedures, such as endovascular surgery and trauma care. This type of training improves critical thinking, decision making, and clinical techniques all without risk to a real patient.

Skills taught by using this methodology were:

- Endo-tracheal intubation
- Use of an AED

➤ Manikin-based Simulation

Manikin-based simulation includes low, mid and high fidelity simulation manikins used in the training of healthcare providers. The level of fidelity refers to the technological abilities of the equipment, from a static manikin used for skills training all the way to a manikin that communicates, has dynamic vital signs, blinks, cries and whose chest rises and falls. There are multiple options depending on the learning objectives and goals of a given course to train using manikin-based simulation

Skills taught by using this methodology were:

- Cardio pulmonary Resuscitation
- Attachment of ECG electrodes

CONTENT VALIDITY OF THE TOOLS

Content validity of the tools was obtained by submitting the tools to ten experts, out of which five were senior faculty members from Department of Anesthesiology, two were senior nursing faculty members from college of nursing, two Senior Nursing officers cum BLS and ACLS instructor and one Nursing Officer of Dr. RML Hospital. They were requested to give their expert opinion about the relevance, clarity and appropriateness of the items. Suggestions were taken & more questions related to intubation, chest-compressions and alteration in the sequence were included. Modifications were made according to the suggestions.

PILOT STUDY

Pilot study was conducted after receiving formal permission from the competent authority. The study duration was of 15 days i.e; from 2nd March 2019 to 16th March 2019. On Day 1 Knowledge pretest and practice pretest was administered individually to the nursing students on ACLS followed by which Simulation Based Education on ACLS was given. Later, Post practice test was administered to the same students and along with distribution of structured knowledge questionnaire and its collection on the same day.

RELIABILITY OF THE TOOLS

The structured knowledge questionnaire having 25 items and skill assessment practice test having total 14 items including the subparts were administered to 10 subjects regarding ACLS prior to the final study. The reliability for the structured knowledge questionnaire and skill assessment practice test was established by Karl Pearson Correlation Coefficient Formula. According to Karl Pearson’s Correlation Coefficient, it is used to measure the degree of linear relationship between two variables. It is denoted by ‘r’. The reliability coefficient was found to be 0.95. Thus the tool was found to be reliable.

FINDINGS OF THE STUDY

1) Sample Characteristics

Our sample for research study was homogeneous group (final year nursing students) i.e. having same characteristics related to age group, sex, education level. The pre-test and post-test score obtained through the structured knowledge questionnaire was analyzed using the descriptive and inferential statistics. The data analyzed in terms of Mean, Median, Mode and Standard Deviation of pre-test and post-test scores were calculated and presented in the following tables.

2) Findings related to the evaluation of the effectiveness of simulation based education in terms of knowledge regarding ACLS.

The mean post- test knowledge score of the experimental group (20.25) after simulation based education was higher than their mean pre- test knowledge score (15.6). (See table.1) and with the control group pre-test score (15.25) and post-test score (15.2). (See table.2) These scores indicated that simulation based teaching is more effective & useful in enhancing knowledge of students regarding ACLS.

TABLE No. 1: Knowledge score of Experimental group (N=25)

Knowledge Test	Mean	Median	Mode	Standard Deviation	Minimum Score	Maximum Score
Pre test	15.60	15.50	14	1.82	13	19
Post test	20.25	20	20	1.40	17	22

The data presented in table no.1 indicated that the mean post test score (20.25) was higher than the pre-test score (15.6) suggesting the effectiveness of Simulation within the experimental group.

TABLE No.2: Knowledge score of control group (N=25)

Knowledge Test	Mean	Median	Mode	Standard Deviation	Minimum score	Maximum score
Pre test	15.25	15	15	2.48	8	20
Post test	15.2	16	16	2.4	6	18

N=no. of subjects

The data presented in table no.2 indicated that the mean post test score (15.2) was almost similar to mean pre-test score (15.25) would suggest that there was no increase in knowledge within the control group.

Therefore, it was inferred that there was considerable increase in the post test score of the experimental group after administration of Simulation Based Education in comparison to Control group.

3) Findings related to the evaluation of the effectiveness of simulation based practice in terms of skill regarding ACLS.

The mean post-test skill assessment practice score (57.8) of the experimental group after simulation was higher than their mean pre-test skill assessment practice score (40.45). (See table-3) and was also higher than the pretest skill assessment practice score (41.1) and post- test skill assessment practice score (41.75) of control group. (See

table 4) These scores indicated the effectiveness of simulation based practice in enhancing the skills of the students regarding ACLS.

TABLE No.3: Pre- test and post- test skill assessment practice score of experimental group(n=25)

Knowledge Test	Mean	Median	Mode	Standard Deviation	Minimum score	Maximum score
Pre test	40.45	40	40	5.04	30	47
Post test	57.8	57.5	58	5.91	48	68

The data presented in the **table. 3** indicated that mean post-test skill assessment practice score (57.8) was higher than the mean pre-test skill assessment practice score (40.45) suggesting the effectiveness of simulation.

TABLE No.4:Pre- test and post- test skill assessment practice score of control group (n=25)

Knowledge Test	Mean	Median	Mode	Standard Deviation	Minimum score	Maximum score
Pre test	41.1	40.5	45	4.80	32	48
Post test	41.75	41.5	41	5.69	30	50

The data presented in the **table 4** indicated that mean post-test skill assessment practice score (41.75) was almost similar to mean pre-test skill assessment score (41.1) suggesting that there was no increase in the practice skill.

Therefore, it would be definitely inferred that there was considerable increase in the post test practice score of the experimental group in comparison to the control group.

4) Findings related to correlation between post-test knowledge and posttest skill assessment practice score of experiment group on simulation regarding ACLS.

The coefficient of correlation between post-test knowledge and post-test practice score (0.95) was found to be significant at 0.05 level, indicating the knowledge and practice of students on ACLS are having significant relationship. It indicates Simulation Based Education improves knowledge and practice of students.

Table No.5: Comparison of Experimental & Control Group Post-test skill assessment Practice score.n=25

Skill Assessment Practice Test (Post test)	Mean	SD	SE	't' value
Control group(n=20)	41.75	5.69		
Experimental Group (n=20)	57.8	5.91	1.83	-8.77

At degree of freedom (df) (39) $-8.77 < 0.05$

The data presented in the **table 5** show that the mean post-test skill assessment practice score of experimental group (**57.8**) higher than the post-test skill assessment practice score of control group (**41.75**) as evident from 't' value **-8.77** for df (39) at p-value 0.05 level of significance.

Therefore, it could have been inferred that the above difference obtained in the mean post- test score of experimental and control group was due to the effect of simulation. Hence, **the null hypothesis H0 was rejected and research hypothesis H2 was accepted. This suggests that the simulation was effective in enhancing the practice of ACLS.**

Table No.6: Correlation between post-test knowledge and skill assessment practice score of experimental group

SCORE	SIGNIFICANCE	r (correlation)
Knowledge Practice	0.05	0.95

d(39), $r=0$ at level of significance

The data presented in **table 6** shows the coefficient of correlation **r(0.95)** between post-test knowledge and skill assessment practice score. This relationship indicated that increase in knowledge and skill was due to the effect of simulation. Hence, the research hypothesis was accepted and it had interpreted that there was significant relationship between post-test knowledge and skill assessment practice score.

DISCUSSION

The present study was conducted to assess the effectiveness of simulation based nursing education on knowledge and practice of advanced cardiac life support among final year undergraduate nursing students. The findings of the study concluded that there was positive effect of simulation based education on the knowledge and the practice of ACLS among final year undergraduate nursing students as evident by the mean of post test scores of experimental group which was higher. Similar to the findings of present study, **Fatimah Lateef et al (2010)** concluded that simulation-based training has opened up a new educational application in medicine. Evidence-based practices can be put into action by means of protocols and algorithms, which can then be practiced via simulation scenarios. The key to success in simulation training is integrating it into traditional education programmes. The clinical faculty must be engaged early in the process of development of a programme such as this. Champions and early adopters will see the potential in virtual reality learning and will invest time and energy in helping to create a curriculum. They can then help to engage the wider medical community. Teamwork training conducted in the simulated environment may also offer an additive benefit to the traditional didactic instruction, enhance performance, and possibly also reduce errors. The cost-effectiveness of potentially expensive simulation-based medical education and training should be examined in terms of improvement of clinical competence and its impact on patient safety. Perhaps, with the adoption of simulation as a standard of training and certification, health care systems will be viewed as more accountable and ethical by the population they serve. In another study conducted by **N Joseph et al. (2015)** concluded implementation of SBL in medical & nursing colleges has been perceived favorably by a large number of participants, particularly female students and senior medical students. While the use of SBL is likely to expand with the modernization of medicine and the advent of new technologies and methods, policy development is needed to ensure its coordinated and cost-effective implementation. In another study by **Kim et al. (2016)** suggested that simulation-based nursing educational interventions have strong educational effects, with particularly large effects in the psychomotor domain. Since the effect is not proportional to fidelity level, it is important to use a variety of educational interventions to meet all of the educational goals. Similarly, **D'Souza MS et al. (2017)** concluded that Post-test knowledge and performance scores were significantly higher in the nursing students who were exposed to simulation in the three scenarios. The post-test scores increased across the scenarios from Myocardial infarction and cardiac arrest, shock and trauma to the DKA and hyperglycaemia compared to the videos. There was higher performance among intensive care nurses in simulated emergency scenarios and increased critical thinking, clinical-judgment, skill acquisition & clinical reasoning.

For the improvement in CPR skills, most medical college and nursing colleges administer to their students an ACLS course, and besides most hospital provide their nurses and doctors with ACLS program regularly. Simulation emerges as an important step in nursing education for enhancing learning, improvement patient safety and clinical practice. The World Health Organization (WHO) has provided standards for nursing education and recommends the use of simulation (WHO-2009).¹⁵

The purpose of this study was to compare the effects of simulation-based education and practice on knowledge of ACLS among nursing students. These results suggest that simulation-based nursing educational interventions have strong educational effects, with particularly large effects in the psychomotor domain. Since the effect is not proportional to fidelity level, it is important to use a variety of educational interventions to meet all of the educational goals.

Keywords:

These results suggest that simulation-based nursing educational interventions have strong

educational effects, with particularly large effects in the psychomotor domain. Since the effect is not proportional to fidelity level, it is important to use a variety of educational interventions to meet all of the educational goals.

CONCLUSIONS

These results suggest that simulation-based nursing educational interventions have strong educational effects, with particularly large effects in the psychomotor domain. Since the effect is not proportional to fidelity level, it is important to use a variety of educational interventions to meet all of the educational goals

IMPLICATIONS OF THE STUDY

The findings of the study have implication for nursing students, nursing clinicians, nurse educator and nurse administrator.

1. Nursing students

Findings of the study suggested that there is a need for nursing student to understand about simulation based education, its importance and uses in nursing education, learning of skills and practicing them in real clinical situation. Nursing students should be able to differentiate between traditional teaching methods and simulation based education.

2. Nursing educators

The teaching curriculum should include simulation based education as the primary method of disseminating the teaching of various skills required in nursing practice. The nursing colleges must provide the facility of simulation lab for nursing students to promote practice of nursing skills in natural and real life like settings.

3. Nurse-clinicians

Nurse-clinicians can allow nursing student and other medical staff to conduct practices pertaining to medical field under their supervision and guidance. Simulation based education allows competent practice of wide range of skill-set in hospital settings. Mock-drills can be conducted to familiarize the hospital staff with actions needed to be taken in case of an emergency.

4. Nurse-administrators

Nursing administrators should utilize the skilled nurse-clinicians to the maximum extent possible by allowing the use of simulation based education and practice. He or she must be allowed for conduction of the same in his or her ward or department. As an administrator he or she should rely on evidence based practice.

5. Nurse-researcher

No professional can exist without research. To develop its body of knowledge, to test its strategy and to ensure that new actions could make a difference. It was found that few studies have been conducted in the aspect of teaching advanced cardiac life support and to learn about simulation based education. The objectives and results of this research can be utilized by other nursing students for learning. Moreover, interested researchers can take up this topic and can conduct further research for the advancements in the field of nursing.

RECOMMENDATIONS

Investigator of the study have attempted to emphasize certain key concerns which may be recommended for future research. A similar study can be replicated in a larger sample to validate data and generalize the findings. It is strongly recommended that Simulation based education could be brought to use for teaching not only ACLS but other nursing skills also to facilitate better understanding of nursing skills practice.

STRENGTHS

Very few studies have been done with regards to the role of simulators in training nursing professionals and what nursing students perceived of such type of teaching methods. Such innovative teaching methods will help to improve the quality nursing care that meets the health care needs of individuals, families and communities.

LIMITATIONS

This was a single center study and participants were chosen by convenience sampling. Hence findings may not be generalizable to other settings. Even though Simulation based learning was perceived positively by students, it remains unclear whether the skills acquired with this teaching methodology transfer to the real-world settings such as improvement in patient care. Further research is needed to evaluate these aspects.

CONCLUSION

This study concluded that Simulation based education on ACLS was an effective method of enhancing the knowledge and practice of the same among the undergraduate nursing students. The coefficient of correlation between post-test knowledge and post-test practice score (0.95) was found to be significant at 0.05 level, indicating that the knowledge and practice of nursing students on ACLS is showing significant relationship. This relationship indicated that the increase in knowledge and skill occurred due to the effect of simulation.

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