

Knowledge and Perception on Simulation Based Education (SBE) among the Nursing Fraternity in India

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Abstract:

Introduction: By putting students in situations where they must actively solve problems, educational simulation is a teaching method that assesses participants' knowledge and ability levels. The guidelines are established by the instructor to ensure a secure setting for experiential learning.

Methodology: The descriptive survey design was undertaken to assess the knowledge and perception on simulation-based education among the nursing fraternity working in different nursing colleges in India. Total 70 study participants were selected by using convenience sampling techniques and data were collected by using self-structured questionnaires to assess the knowledge level of participants and Likert scales were used to assess the perception of participants regarding simulation-based education. Data were analysed by using descriptive and inferential statistics.

Results: The study findings revealed that 51.4% had adequate knowledge and 48.6% of participants had moderate level of knowledge regarding simulation-based education. Most of the demographic variables were not significantly associated with the level of knowledge of nursing fraternity regarding simulation-based education except if you attended simulation-based education ($p=0.021$) was found statistically significant at 0.05 level of significance.

Conclusion: With the finding of this study, it is concluded that the majority of nursing fraternity were knowledgeable about simulation-based education in nursing education. Furthermore, most of the nursing fraternity were found to have a positive perception toward simulation-based education in nursing education.

Key words: - Knowledge, Perception, Simulation Based Education, Nursing Fraternity

BACKGROUND OF THE STUDY

Healthcare is a high-risk sector since it involves significant obligations and constant risk to people's lives. At all stages of a clinician's career and in all facets of healthcare education, simulation is being used more frequently. In most parts of the world, exposure to simulation-based education (SBE) continues through postgraduate and post qualification

education as well as part of continuing professional development. SBE typically begins throughout university undergraduate healthcare courses.¹

Working "ex vivo," or without utilising actual patients, simulation is acknowledged as having the ability to offer a secure and pertinent learning experience. The authors of this essay draw on their combined 55 years of SBE experience, which includes work on simulator construction as well as experience in a range of contexts, simulation modalities, learning levels, and healthcare professions.^{2,3,4}

The use of simulation in medical education might be a way to close this knowledge gap.⁵ Simulating patient contacts with computer-based partial task simulators, high-fidelity whole-body mannequins, and screen-based computer simulations is a method of teaching. Simulators have the advantage of allowing repeating of the same scenario in a controlled environment while also replicating patient care scenarios in a realistic setting. By allowing practise without endangering the patient, this reduces the possibility of medical error. Modern simulators are also a helpful tool for student assessment due to the recording and feedback capabilities.^{6,7} Additionally, simulation-based learning (SBL) can offer the best setting for developing and learning behavioural and collaboration abilities.^{8,9} These abilities are crucial for trainees since the delivery of health care.^{10,11}

The usage of this area by faculty members along with the technical components using computer mannequins has taken centre stage in nursing education. Role play, standardised patients, digital mannequins, and virtual simulation are all forms of simulation used today. Simulator integration into the curriculum as a whole is becoming essential. Nowadays, simulation enables students to pick up new skills, hone their clinical reasoning, and become capable of providing safe care for patients and their families.¹²

The breadth of simulation-based learning opportunities can provide an alternative to conventional, frequently difficult to find clinical encounters.¹³ A relatively new instructional strategy in nursing education is the use of patient simulators. In order to promote critical thinking, clinical decision making, and psychomotor skills, standardising scenarios, eliminating risk to a live patient, giving instant feedback, and integrating knowledge and behaviour are just a few of the reasons why simulation is an effective educational technique.¹⁴ Essential components of patient safety, such as the avoidance of medication errors, the encouragement of efficient communication, and the value of cooperation, can be stressed through patient simulation situations. Students can experience critical care situations and respond without worrying about hurting anyone.¹⁵

Statement of problem: -

A study to assess the knowledge and perception on simulation-based education (SBE) among nursing fraternity in India.

Objective: -

1. To assess the knowledge and perception on simulation-based education (SBE) among nursing fraternity.
2. To find out the association between knowledge score with selected demographic variable.

Assumptions:

- Sample were the true representation of population.
- The tools/instruments measure the study variables.

RESEARCH METHODOLOGY

Research approach: Quantitative research approach was used to assess the knowledge and perception on simulation-based education (SBE) among nursing fraternity

Research design: Descriptive research design

Research Setting: Virtual

Population: Nurses who have completed their studies (B.Sc. Nursing, Post Basic B.Sc. Nursing, M.Sc. Nursing and above)

Sample size: 70 Nursing fraternity

Sampling technique: Convenient sampling technique

Tools of study: for the assessment of knowledge a structured knowledge questionnaire was prepared and for the perception a Likert scale was used.

SECTION- A: Description of demographic variables of study participants.

Table no. 1: Frequency and percentage distribution of demographic variables of study participants. **N=70**

S. No.	Demographic variables	Frequency	Percentage
1.	Age (in years)		
	a) 21-25	16	22.9%
	b) 26-30	24	34.3%
	c) 31-35	18	25.7%
	d) 36-40	12	17.1%
2.	Gender		
	a) Male	18	25.7%
	b) Female	52	74.3%
3.	Education		
	a) B.Sc. Nursing	21	30%
	b) M.Sc. Nursing	45	64.3%
	c) PhD Nursing	04	5.7%
4.	Have you attended training on simulation-based education?		
	a) Yes	47	67.1%
	b) No	23	32.9%

5.	Do you have Simulation lab?		
	a) Yes	33	47.1%
	b) No	37	52.9%
6.	Do you use simulation as a teaching methodology?		
	a) Yes	33	47.1%
	b) No	37	52.9%

Description of table no 1: - majority 34.3% of participants lies in the age group between 26-30 years. More than half of the study participants 74.3% were females. More than half of the study participants 64.3% were M.Sc. nursing. 67.1% of the study participants has attended simulation-based training programme. 47.1% of study participants has simulation lab in their college. 47.1% of study participants use simulation as a teaching methodology.

SECTION – B: Analysis based on the objectives

Objective 1: To assess the knowledge and perception on simulation-based education (SBE) among nursing fraternity.

Table no. 2: Frequency & percentage distribution of level of knowledge on simulation-based education (SBE) among nursing fraternity.

N=70

Level of knowledge	Obtained score	Freq.	%
Adequate knowledge	7-10	36	51.4
Moderate knowledge	4-6	34	48.6
Inadequate knowledge	0-3	00	00

Maximum score=10

Description of table no 2: - Majority 51.4% had adequate knowledge and 48.6% of participants had moderate level of knowledge regarding simulation-based education.

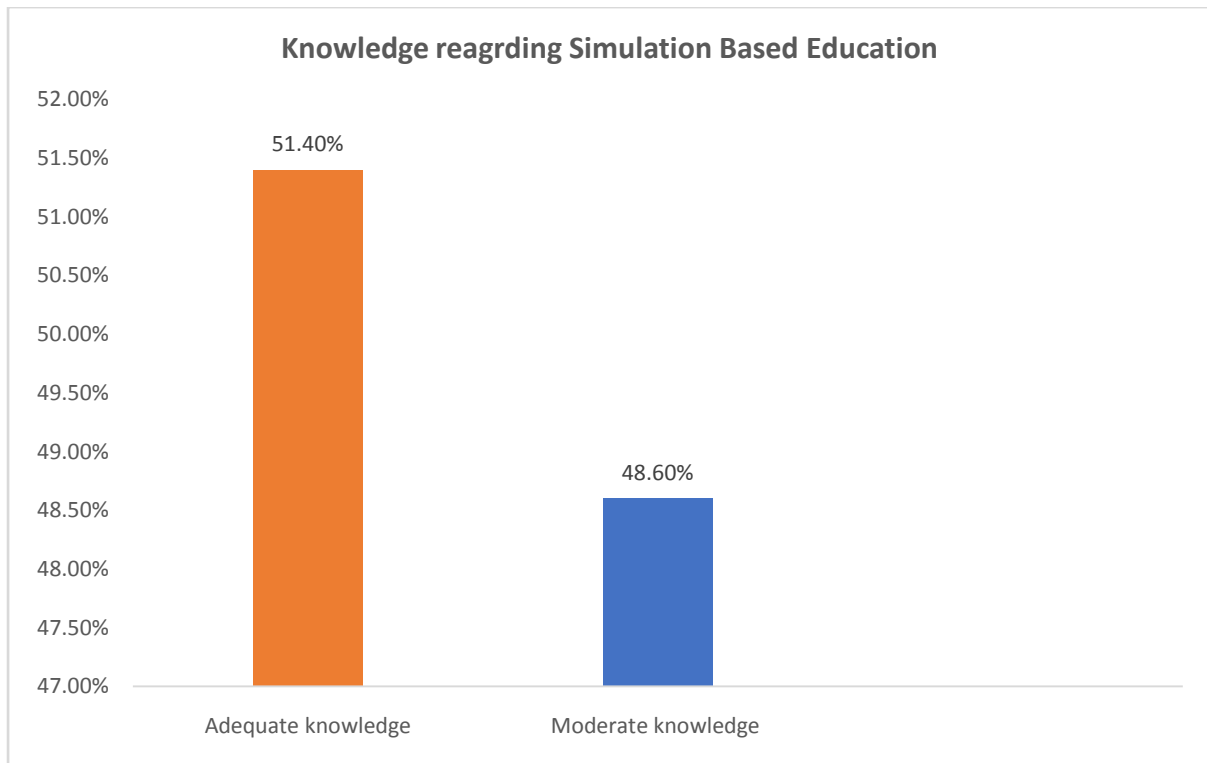


Figure: Percentage distribution of level of knowledge on simulation-based education (SBE) among nursing fraternity.

Table no. 3: Frequency & percentage distribution of perception on simulation-based education (SBE) among nursing fraternity. N=70

S. No.	Statements	Not applicable		Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
		F	%	F	%	F	%	F	%	F	%	F	%
1.	Simulation based education should be used as a preferred method of teaching	10	14.3	14	20	18	25.7	06	8.6	10	14.3	12	17.1
2.	Simulation based education does not require formal teaching	16	22.8	11	15.7	11	15.7	09	12.9	14	20	09	12.9
3.	Simulation does not minimize the patient risk in clinical practice	8	11.4	16	22.9	09	12.9	11	15.7	16	22.9	10	14.2
4.	Simulation based education should be the part of nursing curriculum	15	21.4	09	12.9	08	11.4	07	10	15	21.4	16	22.9
5.	Simulation based education can be used within all specialties.	08	11.4	07	10	14	20	15	21.4	09	12.9	17	24.3

6.	High fidelity manikins are a must for conducting Simulation session.	11	15.8	10	14.3	14	20	12	17.1	11	15.7	12	17.1
7.	I have to invest more time to plan & conduct simulation session in comparison to traditional method of teaching.	11	15.7	14	20	09	12.9	13	18.6	11	15.7	12	17.1
8.	I feel every Nursing faculty should be trained on simulation-based education.	10	14.2	09	12.9	09	12.9	14	20	09	12.9	19	27.1
9.	Training through Simulation Based Education helps in minimizing the errors in clinical set up & improves the patient outcome.	13	18.6	07	10	10	14.3	13	18.6	12	17.1	15	21.4
10.	Simulation Based education helps in improving the psychomotor skills of students through repetitive practice.	12	17.1	05	7.1	08	11.4	14	20	14	20	17	24.3
11.	Simulation Based Education enhances teamwork and communication skills.	15	21.4	06	8.6	09	12.9	12	17.1	11	15.7	17	24.3
12.	Simulation Based Education increases the confidence of the students to act in a real situation.	11	15.7	10	14.3	10	14.3	13	18.6	11	15.7	15	21.4
13.	Complex or uncommon cases can be taught through Simulation Based Education.	11	15.7	09	12.9	12	17.1	13	18.6	11	15.7	14	20
14.	It is difficult to identify the performance/Learning gaps through Simulation Based Education.	07	10	19	27.1	11	15.8	12	17.1	12	17.1	09	12.9

15.	The group size for conducting a simulation session should not be more than 8-10 students.	07	10	15	21.4	11	15.7	13	18.6	10	14.3	14	20
16.	50% of the total clinical hours of nursing curriculum can be replaced with Simulation Based Education.	10	14.2	16	22.9	11	15.7	11	15.7	09	12.9	13	18.6
17.	Debriefing requires more practice among all the components of the simulation process.	17	24.3	14	20	07	10	08	11.4	06	8.6	18	25.7
18.	I want to further build my capacity in using Simulation Based Education as a methodology.	10	14.3	10	14.3	15	21.4	11	15.7	07	10	17	24.3
19.	I feel satisfied when I teach my students with this methodology.	11	15.7	13	18.6	09	12.9	14	20	11	15.7	12	17.1
20.	I get exhausted after running a simulation session.	14	20	17	10	12	17.1	13	18.7	12	17.1	12	17.1
21.	I get anxious when I run simulation session.	13	18.6	09	12.9	10	14.3	14	20	12	17.1	12	17.1
22.	Simulation can be taught in a low resource setting.	11	15.7	11	15.7	07	10	19	27.1	06	8.6	16	22.9

Objective 2: To explore the association between level of knowledge on simulation-based education (SBE) among nursing fraternity with their selected demographic variables.

Table no. 4: Association between level of knowledge on simulation-based education (SBE) among nursing fraternity with their selected demographic variables.

N= 70

S. No.	Demographic variables	Knowledge on simulation-based education		Chi-square	df	p-value
		Adequate	Moderate			

1.	Age (in years) a) 21-25 b) 26-30 c) 31-35 d) 36-40	04 11 12 07	12 13 06 05	6.448	3	0.092
2.	Gender a) Male b) Female	11 23	07 29	1.525	1	0.278
3.	Education a) B.Sc. Nursing b) M.Sc. Nursing c) PhD Nursing	12 20 02	09 25 02	0.928	2	0.780
4.	Have you attended training on simulation-based education? a) Yes b) No	18 16	29 07	6.044	1	0.021
5.	Do you have Simulation lab? a) Yes b) No	18 16	15 21	0.892	1	0.473
6.	Do you use simulation as a teaching methodology? a) Yes b) No	18 16	15 21	0.892	1	0.473

$df_1= 3.84$, $df_2=5.99$, $df_2=7.82$ at $p<0.05$ level of significance

Description of table no 4: - data presented in table no 4 depicts that description of association of knowledge score with selected demographic profile. The association between knowledge score with age the p value was (0.092, gender (0.278), qualification (0.780), have attended training on simulation-based education (0.021), do you have simulation lab (0.473), do you use simulation as a teaching methodology (0.473).

The results indicate there was no significant association found between knowledge score with their selected demographic profile such age, gender, qualification, do you have simulation lab and do you use simulation as a teaching methodology.

Hence, it is interpreted that except have you attended training on simulation-based education, other demographic variable didn't have any influence on knowledge score of study participants.

NURSING IMPLICATIONS:

- The findings of the study have several implications for nursing education, nursing practice, nursing administration and nursing research.
- The implications which have made the present study are of vital concern to the professional nurse practitioners, nursing instructors, nursing administrators and nursing researchers.

Nursing Research-

- Nursing is believed to be a discipline as well as a profession. The former cultivates knowledge while the later uses the knowledge to respond to human needs. Research helps to generate knowledge which guides nursing practice.
- The study was conducted at one institution. A repeat of the study in a different setting is necessary to substantiate the findings. It might be fascinating to investigate whether the beliefs and views of the professional nurses are applied in the clinical environment.
- This study finding will help as baseline data for future researchers to conduct researches on nursing staff to improve the Clinical Competency in terms of Peripherally inserted central line care.

Strength of the study:

This study can act as a baseline data for other studies related to the knowledge and perception on simulation-based education (SBE) among nursing fraternity related studies in India.

Limitations:

The following limitations in this study are worth noting:

1. The size of the sample was small. Hence, it restricted the generalization.
2. The study duration was limited.
3. Only knowledge and perception were assessed and no attempt was made to identify other attributes like attitude and practices.

CONCLUSION:

Study concluded that 51.4% had adequate knowledge and 48.6% of participants had moderate level of knowledge regarding simulation-based education. With the finding of this study, it is concluded that the majority of nursing fraternity were knowledgeable about simulation-based education in nursing education. Furthermore, most of the nursing fraternity were found to have a positive perception toward simulation-based education in nursing education.

CONFLICT OF INTEREST:

The authors declare no conflicts of interest.

SOURCE OF FUNDING:

Self

ETHICAL CLEARENCE:

- A written consent was obtained from participants before starting data collection.
- Commitment was given to each participant that the confidentiality of each individual will be maintained.

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