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Assess The Effectiveness of Simulation Teaching on Conduction of Normal Delivery Skill Procedure among Nursing Students of Selected Nursing Colleges of Bijnor, U.P.

Devimaya R.¹, Divyasree R.², Ranganatha M.G.³¹PhD Scholar (Nursing), BIU Bareilly, ²PhD scholar (Nursing), BIU Bareilly,³Principal, Dept. of Nursing, Vivek University, Bijnor

ABSTRACT

Background of Study: Simulation is a teaching technique in which the learner practices in a situation that mimics a real-life event. Simulation is used for learning skills in situations that are relatively uncommon or high-stakes, such as the need for an aircraft to make an emergency landing. In healthcare, simulation provides unique opportunities for learners to practice and hone clinical skills and critical thinking with the same complexities and distractions that are present in the real clinical setting. Skills such as error recognition and inter-professional team functioning can be taught without placing actual patients at risk or discomfort.

Objectives of the Study 1.To assess the level of knowledge of simulation teaching on conduction of normal delivery skill procedure among nursing students".2.To assess the psychomotor skill of procedure through simulation teaching conduction of normal delivery skill procedure among nursing students". **Research Approach :** A quantitative research approach . **Research Design-** Pretest-Posttest control group design .**Variables** Independent Variable: The simulation teaching. Dependent Variable: The dependent variable in this study is knowledge & Skill among nursing students. **Exclusion Criteria-** Repeater students & Prior attended any workshop or training on similar topic **Description of the tool :** Section 1: Structured questionnaire on knowledge the items were used MCQ four responses. Section 2: Standardized Checklist for conduction of normal delivery three scales checklist. **Scoring Section 1:** Score was knowledge based structured questionnaire Score 1 was given for every correct answer Score 0 was given for every wrong answer, The maximum knowledge score 15. **Section 2:** The level of skill is divided under following heading poor, average, good and excellent. Scored using a rating scale total 24 item in checklist each item has 0, 1, and 2 score. „0“=Not performed „1“ = performed, but incorrectly, „2“ = performed correctly .The maximum performance score 48.

Method of Data Collection : The subjects were explained about the nature and purpose of study. A written consent was obtained from the participants prior to their recruitment in the study.25 students for interventional group & 25 student for control group sample randomly selected for the study .Firstly taken pretest about knowledge on conduction of normal delivery through the administered questionnaire for both the group. The solved questionnaire was collected back after 15minuts.Psychomotor skill on normal delivery conduction was checked through OSCE, in these prepared procedural stations on this station investigator checked skill with the help of checklist on conduction of normal labor for both the group.

Keywords: *Simulation based teaching, Normal delivery, skill procedure.*

Corresponding author

Devimaya R.

PhD Scholar (Nursing), BIU Bareilly

Introduction

In the past, educators believed that, to produce competent nurses, it was enough to provide students with a variety of clinical experiences in which learners could apply classroom content. Today, however, experienced nurses, managers, and staff development educators find that many students and new graduates lack the critical thinking skills needed to work in the increasingly complex clinical environment. Providing patient simulations is a relatively efficient method of teaching content and critical thinking skills safely and in collaboration with the instructor, without fear of causing harm to actual patients. Simulated experiences are very effective in identifying student strengths and weaknesses, simulated nursing experiences provide learning in a controlled environment that increases the student's confidence and enhances patient safety and comfort. Simulation is a teaching and learning strategy that is increasingly used in nursing education to prepare students for the clinical workplace.

Prior reviews have supported the use of virtual simulation in the context of nursing education but are limited to mainly narrative synthesis and a focus on general learning outcomes (Coyné et al., 2021; Foronda et al., 2020; Shin et al., 2019). Only one review examined the effect of virtual simulation for teaching diagnostic reasoning to healthcare providers (Duff et al., 2016). However, that review employed a scoping review methodology and the acknowledged limitation of only 12 studies written between 2008 and 2015 (Duff et al., 2016). Although the use of virtual simulation has increased in nursing education, evaluation of its impact on the development of clinical reasoning skills has not yet been carried out. This could be due to the variety of approaches, including multiple-choice questions, script concordance, and clinical performance assessment, that were used as a proxy to evaluate the outcome measure of clinical reasoning (Clemett & Raleigh, 2021). Thampy et al. (2019) recommended targeting the higher level of Miller's pyramid of clinical competence to assess clinical reasoning. This pyramid has four levels of competency hierarchy: knowledge (tested by written assessment), applied knowledge (tested by problem-solving exercises such as case scenarios and written assignments), skills demonstration (through simulation and clinical exams), and practice (through observations in real clinical settings) (Witheridge et al., 2019). Currently, there is limited understanding of how virtual simulations can be designed to optimize the development of clinical reasoning. In view of the abovementioned research gaps, this review aimed

to evaluate the effectiveness of virtual simulations and their associated design features for developing clinical reasoning among nurses and nursing students. The review was guided by the following research questions:

NEED FOR THE STUDY

In nursing, there is limited research on the effectiveness and outcomes when using simulators and simulations. In healthcare the emphasis is on giving accurate and safe care to patients, and simulators and simulations allow for the practice of this important goal in a less threatening environment. In 2003, the National League of Nurses (NLN) endorsed the use of simulations in order to prepare students in critical thinking and self reflection as well as preparing them for the complex clinical environment.

The National Reference Simulation Centre (NRSC) was founded in October 2018 by a Tetra Partite collaboration between the Indian Nursing Council (INC), Jhpiego, Laerdal, and SGT University Delhi with the goal of implementing inter-professional education through simulation-based education. It was designed to complement the clinical components of all four years of the B.Sc. Nursing programme, including Nursing Foundations, Medical Surgical Nursing I and II, Child Health Nursing, OBG Nursing, and Community Health Nursing. Nursing professional bodies around the world have embraced simulation (National League for Nursing, Nursing & Midwifery Council).

Recently the use of simulation in nursing education has increased because of growing awareness of simulation's availability and utility in nursing education. Now a days simulators are becoming more affordable. The awareness of the importance of patient safety and the scientific data supporting the use of simulation in skill development among health care professionals are increasing. Sixteen literature or systematic reviews were included in the article database. These reviews covered a broad range of topics within simulation in undergraduate nursing education. For example, in a systematic review Lapkin et al. (2010) considered the effectiveness of patient simulation manikins in teaching clinical reasoning[9]. Leigh (2008) reviewed the use of high-fidelity patient simulation and nursing students' self-efficacy[10]; while Neil and Wotton (2011) completed a literature review on high-fidelity simulation debriefing in nursing education.

Simulation is a teaching technique in which the learner practices in a situation that mimics a real-life event. Simulation is used for learning skills in situations that are relatively uncommon or high-stakes, such as the need for an aircraft to make an emergency landing. In healthcare,

simulation provides unique opportunities for learners to practice and hone clinical skills and critical thinking with the same complexities and distractions that are present in the real clinical setting. Skills such as error recognition and inter-professional team functioning can be taught without placing actual patients at risk or discomfort.

Review of Literature

Kaplan and Ura's (2010) study used simulation to assist student confidence while enhancing the students' ability to prioritise, delegate and safely care for numerous patients. The authors recognised that the use of multiple concurrent simulators in undergraduate nursing was limited and so they developed a focused case study. The participants were 97 senior nursing students and the overall aim was to review the link between patient simulation and clinical performance improvement. The intervention group obtained a significantly higher overall in-training performance score than the control group: mean checklist score 20.87 (SD 2.51) versus 19.14 (SD 2.65) $P = 0.003$ and mean global rating 3.25 (SD 0.99) versus 2.95 (SD 1.09) $P = 0.014$. Post course performance did not show any significant difference between the two groups. Trainees who assessed peer performance were more satisfied with the training than those who did not: mean 6.36 (SD 1.00) versus 5.74 (SD 1.33) $P = 0.025$. Conclusion Engaging trainees in the assessment of peer performance had an immediate effect on in-training performance, but not on the learning outcome measured two weeks later. Trainees had a positive attitude towards the training format 25 questionnaires (80.6%) were analyzed.

An anonymous survey was placed on the course Blackboard site for the students to provide an evaluation of their experience. Uptake on completing this survey was high with 96 students reporting their simulation experiences. Primarily the students reported either strongly agreeing or agreeing that the simulation exercise increased their understanding of prioritizing and delegating care, their confidence in team work and that the case studies increased their understanding of the clinical case. The students repeatedly reported that the simulation exercise was the most realistic of their previous simulations. However, the data also indicated that 26 percent of participants did not believe that the simulation enhanced their confidence or prioritization abilities, and they reported feelings of inadequacy after the simulation as they realized their lack of knowledge and nursing skills.

In a recent study, Bremner and associates examined the value of using the human patient simulator as an

instructional strategy with novice nursing students. A sample of 41 students completed a questionnaire about their learning experiences with the human patient simulator. The simulator session was rated as good to excellent by 95 percent of the students, and 68 percent recommended it as a mandatory component of their educational program. Over 60 percent of the students indicated that the patient simulation experience increased their confidence in physical assessment skills. Limitations of the technology identified by students included not having enough time to work with the simulator, initial anxiety when first encountering the patient simulator, and a lack of realism

(Rowles and Brigham, 1998). Simulation may be presented using a variety of means including computer software, role play, case studies, games, or manikins that represent reality and actively involve learners in seeing the taught skills within their clinical context (Rowles and Brigham, 1998). Simulation goes much further than clinical skills demonstration. It not only provides a safe environment for skills development and confidence in skills delivery, but supports the student in approaching clinically based scenarios and making decisions about care delivery. Simulations provide an opportunity to relate and up to date evidence base to inform practice decisions and clinical confidence and competence

Research Methodology

Research Approach: A quantitative research approach was adopted for this research study.

Research Design: A quasi-experimental, non-randomized pre-test and post-test control group design was adopted for this research study.

Variables

Independent variable: simulation-based teaching method.

Dependent variable: knowledge & Skill among nursing students

Study Setting: Selected nursing colleges of Bijnor

Population: All nursing students studying in the colleges of nursing in Bijnor

Sample: Nursing students studying in selected colleges of nursing in Bijnor who fulfilled the inclusion criteria and were available during the period of study.

Sample size: The total sample size was 50.

Sampling technique: The simple random sampling technique was adopted for college selection, and the

stratified sampling technique was adopted for sample selection.

Sampling criteria

Inclusion Criteria

Students who were:

- both male and female,
- willing to participate in the study,
- available during data collection period.

RELIABILITY

The reliability of the instrument was established by the split-half method. The reliability value for knowledge was found to be 'r' = 0.76, attitude 'r' = 0.79 and practice 'r' = 0.80, which indicated that the instrument was highly reliable.

Results

Assessment with pretest knowledge score- 76% of the nursing students in control and 80% in Interventional group were having average level of knowledge score, 12% in control and 12% in Interventional group had good level

of knowledge score, 12% in control and 8% in experimental had poor level of knowledge score.

Assessment with posttest knowledge score The above table shows that 80% of the nursing students in control were having average level of knowledge score, 8% in control and 4% in Interventional group had good level of knowledge score, and 96% in experimental had excellent level of knowledge score.

Comparison of pre test and post test Knowledge score in both the groups Student's paired t test-Mean knowledge score at pre test in control group was 5.56±1.98 and in experimental group it was 5.64±1.35 and Mean knowledge score at post test in control group was 8.20±2.10 and in experimental group it was 14.48±0.91. By using students unpaired t test statistically no significant difference was found in pre test knowledge score between control and experimental group(t=1.21, p-value=0.56) and statistically significant difference is found in post test knowledge score between control and experimental group(t=15.37,p- value=0.000).

Table 1 : Comparison between pre and post test knowledge score

Group	Control Group	Experimental Group	t-value	p-value
Pre test	5.56±1.98	5.64±1.35	1.21	0.56 NS, p>0.05
Post Test	8.20±2.10	14.48±0.91	15.37	0.000 S, p<0.05

Comparison of pre test and post test Knowledge score in both the groups. Student's unpaired t test-By using students unpaired t test statistically no significant difference was found in pre test knowledge score between control and Interventional group(t=1.21, p-value=0.56) and statistically significant difference is found in post test knowledge score between control and experimental group(t=15.37,p- value=0.000).

Absolute Learning Gain on Knowledge: Interventional group 58.94% and Control group 2.94%

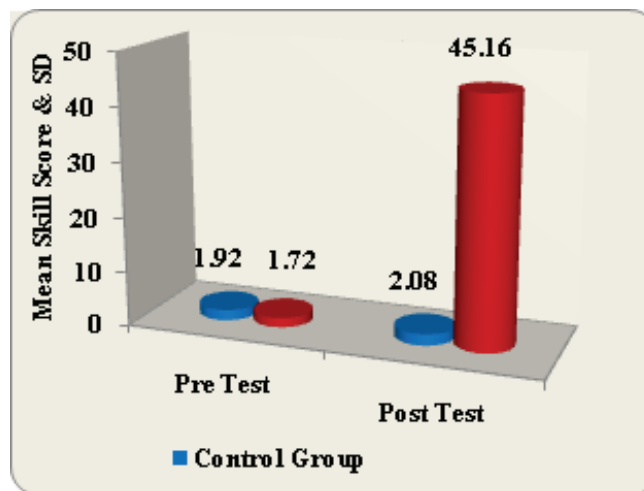
PSYCHOMOTOR SKILL

Assessment with pretest skill score The above table shows that all 100% of the nursing students in control and 100% experimental group were having poor level of skill score.

Assessment with Post test skill score for both groups-The 100% of the nursing students in control had poor level of skill score and 2(8%) in experimental group had good and 23(92%) had excellent level of skill score.

Comparison of pre test and post test Skill score in both the groups Student's paired t test Mean skill score in

control group at pre test was 1.92±1.07and at post test it was 2.08±1.15 whereas in experimental mean skill score at pre test was 1.72±0.90 and at post test it was 45.16±3.30 Experimental 90.5% and Control groups 0.33%.



Comparison of pre test and post test Skill score in Control and Experimental group Student's unpaired t test-By using students unpaired t test statistically no significant

difference was found in post test skill score between control and experimental group ($t=0.21$, p -value= 0.65) and statistically significant difference is found.

Graph 1 showing mean skill score of pre and post test of control and experimental group

Discussion

There were two main objectives of the study first was to assess the knowledge score of simulation teaching on neonatal resuscitation among nursing students, and second objective was assess the psychomotor skill score of simulation teaching. In our study there were the two groups control and experimental group Mean knowledge in control group at pre test was 5.56 ± 1.98 and at post test it was 8.20 ± 2.10 whereas in experimental mean knowledge score at pre test was 5.64 ± 1.35 and at post test it was 14.48 ± 0.91 in experimental group knowledge more increased. By using student's paired t test statistically significant difference was found in mean pre and post test knowledge score in both the group ($p=0.000$).

Mean skill score in control group at pre test was 1.92 ± 1.07 and at post test it was 2.08 ± 1.15 whereas in experimental mean skill score at pre test was 1.72 ± 0.90 and at post test it was 45.16 ± 3.30 . By using paired t-test **no statistically significant** difference was found in mean pre and post test skill score in control group ($p>0.05$) and statistically significant difference was found in experimental group at pre and post test ($p<0.05$). **Simulation teaching was effective to in psychomotor skill score.**

Conclusion

The study group (simulation teaching) increased the post test knowledge score and psychomotor score of nursing student on neonatal resuscitation the simulation teaching was more effective for nursing students. The use of simulation and skills rehearsal as a vehicle for increasing opportunities for students to familiarize themselves with skills before rehearsing and consolidating these skills in practice was reported on Phase one of the Review for Fitness for practice (Long, 2006)¹². Feedback about simulation teaching 86% nursing students was strongly agree with simulation teaching because its help to developed self confidence.

FUTURE SCOPE

Nursing Services: It can be used as a guide for can serve as reinforcement for psychomotor skill on the bases of simulation in clinical area for other procedure.

Nursing Education: Simulation teaching will help students, colleagues, and junior staff to be trained in using

current practice related to other aspect in clinical teaching without harm to actual patient.

Nursing Administration: Findings of the study can be used by the Nursing Administrators to the other procedure in hospital.

Nursing Research other researchers may utilize the suggestions and recommendations for conducting further study.

Vivek University, Bijnor:

Ethical Committee: Name of the Faculty : Mrs Devimaya R, Mrs Divyasree R, Dr Ranganath MG

Designation: Professor OBG Nursing

Subject: OBG Nursing

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Ethical Committee Member Approval

Governing council members:

1. Mr amit goel (Chancellor)
2. Mr Deepak mittal (Secretary)
3. Dr Naresh Gupta (Vice chancellor)
4. Dr Ranganath mg (Principal, nursing)
5. Dr Hitesh sharma (Administrator)

Faculty advisor: Dr Ranaganatha Mg (Principal)

Source of Funding : Self

Conflict of Interest: Nil

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