Research Article

EFFECTIVENESS OF SKILL BASED SIMULATION TRAINING IN INSERTION OF INDWELLING URINARY CATHETER

Soorya George, Jismy Maria T Devasia, Liya Sunny, Stephy Elezabeth John, Reena Wilma Frank* and Sandra Jyothi Saldanha

Department of OBG Nursing, Father Muller College of Nursing / RGUHS University, India

ARTICLE INFO	ABSTRACT
	Nursing profession is focused on providing care to individual, family, or community so they may attain, maintain, or recover optimal health. Nurses are different from other health care providers as the approach of nursing mainly focuses on patient care, training and health promotion. Nursing education faces challenges pertaining to provision of these clinical skills. Simulation training is one of the key which helps to develop the skill and clinical reasoning. Modern nursing education system has adopted simulation based learning through which students can be exposed to various clinical skills. It also helps in building confidence among nursing students. Aim of the study is evaluate the effectiveness of skill based simulation training programme on insertion of indwelling urinary catheter. A quasi-experimental one group pre-test post-test research design was adopted for the study. The sample consisted of 57 first year BSc nursing students who were selected by simple random sampling technique. The results were computed by obtaining mean difference between pre test and post test skill scores which were 11.09 ± 2.23 and 23.35 ± 3.04 respectively. This showed significant increase in skill pertaining to indwelling catheterization. The study revealed that the simulation learning programme is an effective means in increasing the skill level of the student nurses on insertion of indwelling urinary catheter.

INTRODUCTION

Nursing, as an integral part of the health care system, encompasses the promotion of health, prevention of illness, and care for people with illness of all ages, in both health care and community settings. Within the broad spectrum of health care, the phenomena of particular concern to nurses are based on individual, family, and group, "responses to actual or potential health problems" (Carver L and Candela L, 2008) During past few decades, the changes in educational systems have been replaced by more practically focused, but often ritualistic, training structure of conventional preparation (Manojlovich M, 2007)

Nursing education consists of theoretical and practical training provided to the nurses with the purpose to prepare them for the duties as nursing care professionals. This nursing education is provided to the students by experienced and qualified nursing professionals to improve the skills in nursing care (Martins JC *et al*, 2016). Nursing is a multidimensional technique, which encompasses a variety of methods in teaching-learning process (Nader A, 2016).

Modern nursing education system has adopted simulation based learning as a newer teaching method. Simulation has also gone high-tech, making it an effective tool not only for new nursing graduates, but also for more experienced nurses who want to improve advanced skills in nursing. As an education strategy, simulation typically involves three major parts: preparation of work**,** the simulation, and a debriefing session. A large body of research shows that simulation is incredibly effective as a teaching methodology and can contribute both to better patient outcomes and a culture of safe nursing practices. Various studies have demonstrated that nurses participating in simulation activities improve skills in various areas like recognizing a deteriorating patient, triaging emergency patients, managing stroke patients, working collaboratively in an obstetrics setting, and much more (Pam Moule, 2011)

Catheterization is one of the basic skills nursing students must learn and practice until competency is achieved. In order to reduce the risk for UTI and to improve quality of nursing care, simulation is an effective learning strategy. It helps the students to differentiate unsterile and sterile techniques that are followed

Corresponding author: **Reena Wilma Frank**
Department of OBG Nursing, Father Muller College of Nursing / RGUHS University, India

in the procedure and in a systematic manner (Ndegwa E, 2014). Hence this study was aimed at assessing the effectiveness of skill based learning of nursing students with urinary catheterization procedure.

Objectives of the Study

1. To identify the skills in insertion of indwelling urinary catheter among nursing students before the simulation training program.
2. To evaluate the effectiveness of skill based simulation training programme on insertion of indwelling urinary catheter.
3. To find the association between pre-test scores on insertion of indwelling urinary catheter and selected baseline variables.

METHODS AND MATERIALS

A quasi experimental, one group pre-test post-test design was adopted as a research design for the current study. The sample selected for the study was 57 students from 1st year BSc Nursing from Father Muller College of Nursing by simple random sampling technique. After approval from the hospital ethics committee investigator explained the purpose of the study to the samples. Confidentiality was maintained and written consent was obtained from samples. Investigator instructed the students to perform the procedure in Father Muller Simulation Skill Lab and assessed for his/her skill in the insertion of the indwelling urinary catheter in the areas like prior to the insertion, during insertion and after insertion using the observational checklist followed by the skill training programme demonstrated by the researcher in the mannequins on the same day. And the students were allowed to practice after the demonstration. On the fifth day, the post-test was conducted using the same observational checklist. The data collected was compiled for analysis.

Inclusion Criteria

- Students who have attended theory class on insertion of indwelling urinary catheter.

Exclusion Criteria

- Students not willing to participate in the study

RESULTS

Description of Baseline Variables

The age group of subjects varied from 17 to 19 years where 56.1% belonged to the age group of 18 years, 42.1% belonged to age group of 19 years and 1.8% to the age group of 17 years which is depicted in figure 1. Among 57 subjects, 56 (98.2%) were females. About 46 (80.7%) of students had no previous clinical experience with insertion of indwelling urinary catheterization procedure and only 11(100%) had previous experience in assisting the procedure in the clinical.
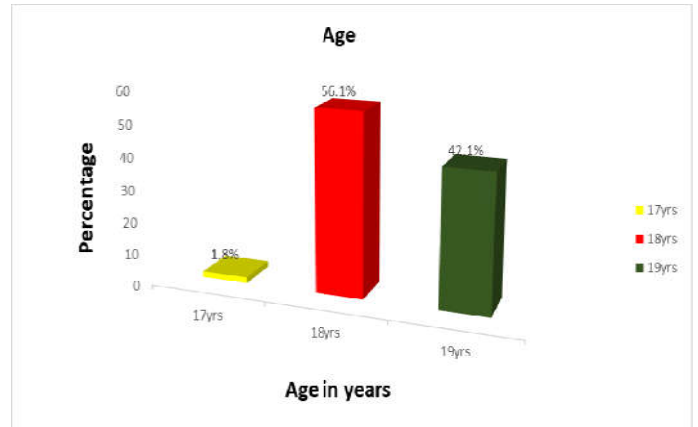

Figure 1 Bar Diagram representing distribution of subjects According to their age

Description of pre-test and post-test scores

Table 1 Distribution of subjects according to their pre-test and post-test score.

n=57

Variable	Range	Mean ± SD	Mean difference
Pre-test	6-15	11.09 ± 2.23	
			12
Post-test	15-28	23.35 ± 3.04	

The mean value of the post-test skill scores is 23.35±3.04 which is higher than that of the mean value of the pre-test skill scores 11.09±2.23 with a mean difference of 12

Effectiveness of skill based Simulation Learning

Table 2 Comparison of Mean and *t*- value of the pre- and post-test skill scores

n=57

Variable	Mean ±SD	*t*-value	p-value
Pre-test	11.09 ±2.23	24.98	0.001**
Post-test	23.35±3.04		

**p<0.001 highly significant

The effectiveness of skill based training was computed using paired t test and obtained value was 24.98 which was highly significant at p< 0.001 level of significance. It signifies that the skill based training is an effective teaching module for nursing students.

Association Between pre-test Scores on insertion of Indwelling Urinary Catheter and Selected Baseline Variables

Analysis of association between pre-test scores on insertion of indwelling urinary catheter and selected baseline variables exposed that there was no significant association between pretest skill scores and baseline variables.

DISCUSSION

In the present study, 56.1% of the subjects belonged to the age group of 18 years and 98.20% of subjects were females. These findings were consistent with the findings of another study that was conducted in Lahti University of Applied Sciences, Slami. The study was based on "patient simulation on first year nursing degree students" which aim to improve their knowledge and skills in nursing care through simple patient cases, in which majority (65.6%) of the nursing students were in the age group of 18 years and most of the subjects who were

involved in this study were females (Mc Gaghie Wc *et al*, 2003).

The findings of the present study showed that the mean post-test skill score was 23.35±3.04. The findings inferred that subjects had poor skill in performing the procedure before simulation training as evidenced by lower mean pre-test skill scores of 11.09 ±2.23. These findings are consistent with the findings of the study conducted in Lahti University, Slami where the mean post-test skill score ($\bar{x}_2$=98.8) was higher than the mean pre-test score ($\bar{x}_1$=19.8) (Mc Gaghie Wc *et al*, 2003). The computed t-value (t_{57}) was 24.98 and p-value, 0.001 which showed that there was significant difference between the pre-test and post-test skill scores. The findings inferred that the skill training programme was effective in improving the skill of the nursing students regarding the insertion of indwelling urinary catheter.

The finding of the present study is congruent with the findings of the study conducted in King Abdulaziz University, Jeddah, based on "Effectiveness of Simulation-Based Blood Pressure Measurement on Practice Competency among 2nd Year Nursing Students". The study found a significant difference between mean pre-test skill score ($\bar{x}_1 = 4.65$) and post-test skill score ($\bar{x}_2$= 8.04) along with computed t-value *(t = 4.12)* and p-value*(p< 0.001)*, suggesting that simulation based training programme was effective and was easily applicable by the students of first year Basic BSc nursing (Eghbalibabadi M, Ashouri E, 2014).

The findings showed that there was no significant association between the pre-test skill score and selected demographic variables, such as age ($\chi_1$2=2.15, p<0.34), gender (χ_2^2=0.98, p<0.32), and previous experience (χ_3^2=0.16, p<0.68).

CONCLUSION

The findings of the study illustrated that skill based learning was effective in performing indwelling urinary catheterization procedure as evidenced by the results presented above. Therefore it can be concluded that skill based learning should be incorporated in the nursing syllabus and made mandatory before clinical practice on patients.

Implications- Nursing education can be provided to the students by adequate exposures on the manikins so that students gain confidence in performing the procedures in clinical field. Nursing administrators should make arrangements for providing simulation training programmes for nursing students in different types of procedures and patient care. However there is more scope for research pertaining to the field of simulation.

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