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A study to assess the effectiveness of simulation teaching on neonatal basic life support among students of selected nursing colleges, Greater Noida, UP

Wichamjailiu Ringkangmai[1], Anushi Singh[2]
[1] Nursing Tutor, Department of Nursing, Kailash institute of nursing Greater Noida, Uttar Pradesh, India
[2] Associate Professor, Department of Nursing Sharda University Greater Noida, Uttar Pradesh, India

Abstract
New born period, just first 28 days of life, carries the greatest risk of mortality. Despite being less than 2% of total period of under 5 children, the new born period accounts for over half of under 5 child mortality. Good care therefore not only improves survival of children but lays foundation of optimal log term physical and neurocogitive development. Under the present study a sample of total 60 students was taken in which 30 students were taken for experimental group and 30 students for control group. For this study a true experimental research design was used and the sampling method was simple random sampling. Pre test was done for both the groups and then simulation teaching was done for the experimental group only. After a period of 7 days post test was taken for both the experimental group and control group. Analysis was done after obtaining the post test by a qualified statistician and on analysis it was concluded that there was a significant increase in knowledge and simulation score the students in the experimental groups after the simulation teaching on neonatal basic life support was given. Thus it proved to be an effective for increase in knowledge and simulation score of the students under the experimental groups.

Keywords: simulation teaching, neonatal basic life support, knowledge

Introduction

Neonatal period is characterized by transition to extra uterine life and rapid growth and development. New born period, just first 28 days of life, carries the greatest risk of mortality. Despite being less than 2% of total period of under 5 children, the new born period accounts for over half of under 5 child mortality. Good care therefore not only improves survival of children but lays foundation of optimal log term physical and neuro cogitive development. Health of the mother and child during pregnancy and childbirth has profound influence on neonatal outcome. Of the 25 million infants born every year in India, 3-5 % experience asphyxia at birth. Asphyxia is characterized by progressive hypoxia, hypercapnia, hypo perfusion and acidosis. It may lead to multiple organ dysfunctions that may cause death. Hypoxic ischemic encephalopathy resulting from asphyxia may lead to long term neuro motor sequelae. When an infant is deprived of oxygen an initial brief period of rapid breathing occurs, if the asphyxia continues, the respiratory movements cease and the infants enters into a period of apnoea known as primary apnoea [1]. Neonatal deaths are the major hindrance for the improvement of survival of children in developing countries. An estimated 4 million babies die in the neonatal period yearly and approximately all of these deaths occur in developing and underdeveloped countries. The need for information on neonatal deaths is increasing because of an increase in the percentage of mortality with a current report of about 40% of global under-five mortality occurs in the neonatal period. World Health Organization defined birth asphyxia as failure to initiate and sustain breathing at birth. Every newborn should be considered at a high risk of birth asphyxia since most cases of asphyxia cannot be predicted [2].

A study in India found the knowledge of BLS to be extremely poor in their study on medical, dental and nursing students, doctors and nurses. In another study from South Africa, poor knowledge and skills of medical practitioners in basic resuscitation were reported. In 2009 medical students from Karachi, Pakistan were evaluated and more than half of them were found to have no knowledge of BLS hence it was concluded that prior training in BLS would improve the knowledge and its application [3].

Need of the Study

In nursing there is a limited research on the effectiveness and outcomes when using simulators and simulation. 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 2013, 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 [4].

Simulation teaching ability to increase critical thinking and knowledge by using an active, student centered method of education. Simulation allows the learner to bring their existing knowledge and build on it, and use debriefing and reflection to contribute to a deeper understanding. Simulation has proven to be effective in improving teamwork, increasing communication, and is an innovative pedagogical approach. It has been demonstrated

that there is a high level of student satisfaction with this type of training. Successful implementation of high fidelity simulation in the medical and nursing fields has contributed to the saving of many lives [5].

Guhde (2011) reports that the simple scenarios are as effective as complex role playing scenarios and recommends that simple scenarios may meet learning objectives more effectively. The author recognizes that the student participants were completing a clinical block concurrently with their similar clinical cases which may have enhanced their learning [6].

In recent study, Bremner and associates examined the value of using the human patient simulator as an instructional strategy with novice students. A sample of 41 students completed a questionnaire about their learning experiences with the human patient simulator. The simulator session was rated good to excellence 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, and a lack of realism [7].

Simulation in education has been used at least since the time of World War II. Simulation in nursing education in the form of static manikins, role playing, CPR manikins, and other techniques has also been utilized as a teaching modality for quite some time. High-fidelity simulation is a relatively new area in nursing education and utilizes high technology simulation monitors and computers. This technology offers new avenues for teaching student nurses scenarios as well as critical thinking and reflection on lived experience and practice. However, the outcome research in the area of high-fidelity simulation in nursing education is limited at this time [8].

Nursing education is constantly evolving as change takes place in health care delivery and as more is learned about knowledge acquisition and the use of technology. In the 1960s, technology changed the way high-risk flight training was taught, with computer-based simulation training gaining favor. In health care profession education, simulation use is often part of high-tech anesthesia or surgical training. Over the last few years, however, high-fidelity simulation (HFS) training using human patient simulators has been playing a larger role as part of teaching programs in nursing schools and continuing education. This type of simulation utilizes a computer-based mannequin, allowing experiential training of skills, knowledge, and decision-making, which builds confidence in a safe environment, transferable to real patient situations [9].

Problem Statement

A Study to Assess the Effectiveness of Simulation Teaching on Neonatal Basic Life Support among Students of Selected Nursing Colleges, Greater Noida, UP**"**

Objectives of the Study

1. To assess the knowledge regarding Neonatal Basic Life Support among Nursing students
2. To assess the neonatal basic life support skills of nursing students
3. To assess the effectiveness of simulation on skills regarding Neonatal Basic Life Support among nursing students
4. To find out the co relation between knowledge and simulation skills on Neonatal Basic Life Support among nursing students
5. To assess the association between the knowledge and simulation regarding neonatal basic life support and selected variables of the study

Method

The present study is A Study to Assess the Effectiveness of Simulation Teaching on Neonatal Basic Life Support among Students of Selected Nursing Colleges, Greater Noida, UP, Sister Callista Roy theory of adaptation model is used as a conceptual framework for this study. It identifies factors like , control process, effectors and output between the research investigator and the students who all are receiving the simulation teaching in nursing colleges regarding the effectiveness of simulation teaching on neonatal basic life support among students of selected nursing colleges in Greater Noida, UP.

Hypothesis

Hypothesis will be tested at 0.05 level of significant.

Ho1: There will be no significant difference between mean pretest and post test simulation score of the two groups

Ho2: There will be no significant association between the simulation score of nursing students and selected variables

The sampling technique used for the study was Simple Random sampling method. The independent variable was the simulation teaching on neonatal basic life support and dependent variable was knowledge and simulation score of the nursing students. The extraneous variables which affected the study were routine classes, clinical duty hours and previous knowledge about the study. The study was conducted among 60 students in School of Nursing Science and Research Sharda University and Prakash Institute of nursing, Greater Noida.

Result

Based on the age in an experimental group, about 16 (26.67%) students were in the age of 21 years, about 8 (26.67%) in the age of 20 years and about 6 (10%) in the age of 22 years.

Under control group, about 19 (63.33%) students were in the age of 21 years, about 8 (26.67%) in the age of 20 years and about 3 (10%) in the age of 22 years.

Based on the gender in an experimental group, about 10 (33.33%) students were males whereas about 20 (66.67%) were females.

Under control group, about 9 (30%) students were males whereas about 21 (705) were females in a current study.

Based on the source of information in an experimental group, about 24 (80%) students were receiving knowledge from books and lectures, about 3 (10%) each were received knowledge from books and internet.

Under control group, about 18 (60%) students were receiving knowledge from books and lectures, about 6 (20%) each was received knowledge from books and internet.

The knowledge category has been allocated on the basis of total 15 (100%) marks which further divided into 3 parts of knowledge categories. The existed knowledge under 3 categories such as

inadequate, moderate and adequate was measured through pre-test score.

Under experimental group, the knowledge score regarding neonatal basic life support among students was assessed about 24 (80%) students had moderate adequate knowledge, about 4 (13.33%) students had adequate knowledge and 2 (6.67%) student had inadequate knowledge in taking neonatal basic life support.

Under control group, the knowledge score regarding neonatal basic life support among students was assessed about 19 (63.33%) students had moderate adequate knowledge, about 6 (20%) students had adequate knowledge and 5 (16.67%) student had inadequate knowledge in taking neonatal basic life support

The simulation category has been allocated on the basis of total 15 (100%) marks which further divided into 3 parts of simulation categories. The existed simulation level under 3 categories such as inadequate, moderate and adequate was measured through pre-test score.

Under experimental group, the simulation score regarding neonatal basic life support among students was assessed about 22 (73.33%) students had moderate adequate simulation level, about 5 (16.67%) students had inadequate simulation level and 3 (10%) students had adequate simulation level in taking neonatal basic life support.

Under control group, the simulation score regarding neonatal basic life support among students was assessed about 15 (50%) students had moderate adequate simulation level, about 8 (26.67%) students had adequate simulation level and 7 (23.33%) students had inadequate simulation level in taking neonatal basic life support.

The calculated‘t’ value in the pre-test and post-test simulation scores under experimental group was 3.87 which was statistically significant at P<0.05% level. Hence, H_0 is rejected. It can be concluded that simulation technique was effective in using neonatal basic life support among nursing students. In other words, differences in pre-test and post-test mean scores of nursing students based in simulation scores is significant. Hence, there is a significant difference between mean pretest and posttest simulation score among the two groups.

In the present study the correlation between the knowledge and simulation scores was obtained and R-Value calculated for knowledge and simulation score was 0.38 which shows that there is significant relationship between knowledge and simulation score under experimental group.

In the present study the correlation between the knowledge and simulation scores was obtained and R-Value calculated for knowledge and simulation score was 0.17 which shows that there is no significant relationship between knowledge and simulation score under control group.

Conclusion

Based on the analysis of the findings of the study, the following inferences were drawn. There was a significant increase in knowledge and simulation score the students in the experimental groups after the simulation teaching on neonatal basic life support was given. Thus it proved to be an effective for increase in knowledge and simulation score of the students under the experimental groups. Therefore, this intervention should be promoted as an institutional policy and implemented for all the nursing students following simulation teaching for increase in the knowledge and simulation scores.

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