Effect of Application of Hybrid Simulation for Delivery Nursing Care

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Abstract. The purpose of this study was to examine the effects of an education program that uses hybrid simulation for delivery nursing care on the knowledge, nursing performance ability, and problem solving ability of nursing students. A quasi-experimental, non-equivalent control group pre-post test design was applied to this study. The program consists of a scenario in which each of the situations from the first to the fourth stage of labor were presented. Data were analysed using frequency, ratio, Chi-square, Fisher's exact and t-test using the SPSS/Win 18.0 software package. In conclusion, it was shown that the delivery nursing care education program using hybrid simulation improved students’ knowledge and performance of delivery nursing care. As such, this program has proven effective in enhancing the core competencies of nursing students. It is considered that this method of education will be available as an alternative to clinical training education.

Key words: hybrid simulation, problem solving ability, competence

1 Introduction

1.1 Necessity of the Study

The objective of nursing education is to cultivate professional and well-qualified nurses by teaching nursing students the knowledge, skills, and attitudes required in the clinical field through theoretical and practical education. In particular, practical education is considered as determining the future of clinical nursing, since it plays a crucial role in nursing education and also improves practical nursing skills[1]. Practical education is a prerequisite for an improvement of practical skills in nursing. However, it is currently confronting difficulties. In particular, childbirth education in
Nursing simulation education makes it feasible to provide integrated education and achieve the maximum level of learning effects and outcomes[2]. In particular, a highly-functional patient simulator is able to express the physiological reactions of a patient through the operation of a computer and realize various conditions of disease, along with repetitive practice. Therefore, it has been widely used as an educational tool for improving core nursing abilities. However, a nurse is required to find and solve not only the physiological responses of a patient but also the verbal and non-verbal expressions from a patient. As such, there is difficulty in realistically reproducing clinical situations with a simulator alone. Previous studies of the use of simulation in the field of nursing have utilized highly functional patient simulators and measured knowledge and the effect of clinical competence and problem solving skills in various areas, such as emergency care education[3], critical care nursing education[4], maternal-child nursing education[5]. However, the results of the various studies have not been consistent. For this reason, it is meaningful to examine how delivery nursing care education influences the core nursing abilities of a nursing student based on hybrid simulation teaching/learning methods.

The aim of this study is to develop and apply delivery nursing care education program with a hybrid simulation, to verify its effects and to provide fundamental resources for the operation of practice education.

1.2 Objectives of the Study

The objective of this study is to analyze the effect of how a delivery nursing care education program with a hybrid simulation influences delivery knowledge, capability of performing delivery nursing care, and the problem-solving ability of college nursing students.

2. Research Methods

2.1 Study Design

This study is a similar type of experiment research applied with a design before and after dealing with a non-equivalent control group that compares the knowledge of delivery nursing care, capability of performing delivery nursing care, and problem-solving ability of an experimental group that participated in hybrid simulation delivery nursing education program with that of a control group.
2.2 Study Procedure

A hybrid simulation delivery education program was developed by considering nursing knowledge, skills and technologies in each of the four stages of delivery.

Arbitration of the experimental group had been performed for 27 days. On the first day, March 25, education courses were explained implementing the orientation of the courses and preliminary survey on knowledge of delivery nursing care and problem-solving ability. knowledge of delivery nursing care and problem-solving ability were measured using a self-report survey. For two days, April 5 and 6, standardized patients and simulators were used to perform preliminary investigation of capability of performing delivery nursing care. Particular orientation about hybrid simulation scenarios was performed on 5 teams consisting of 5 to 6 members in each team on April 12 and 13. Students were asked to read an instruction that had a brief description of the situations of mothers. Delivery procedures were divided into four sections, in other words, from 1st delivery stage to 4th stage, and team members would play the role of leader by rotation in each of the sections. The role of mother was assigned to a standardized patient. If the team leader was unable to appropriately cope with situations when students performed nursing assessment during the simulation, they were asked in the mutual constructive arbitration to supplement their weaknesses and educated to cooperate with each other for accurate communication and mutual respect. After applying the delivery nurse program to the developed scenario, follow-up investigation was performed on the 19 and 20 of April. knowledge of delivery nursing care and problem solving ability were measured in the same manner through a preliminary investigation. Furthermore, capability of performing delivery nursing care was estimated.

3 Results of Research

It was found that the experimental group who participated in the hybrid simulation delivery nursing education program had a significantly higher level of nursing knowledge, based on the experimental group's score of 17.85(±1.54), and the control group's score of 16.02(±1.57). It was found that experimental group who participated in the hybrid simulation delivery nursing education program had a significantly higher level of nursing knowledge, based on the experimental group's score of 35.85(±4.84), and the control group's score of 26.05(±3.91) (t=-6.87, p=<001). It was found that the experimental group in the hybrid simulation delivery nursing education program had not a significantly higher level of problem solving ability, based on the experimental group's score of 3.36(±.36), and the control group's score of 3.30(±.41) (t=-.582, p=.563).
4 Conclusion

In conclusion, it was shown that the delivery nursing care education program using hybrid simulation improved students' knowledge and performance of delivery nursing care. As such, this program has proven effective in enhancing the core competencies of nursing students. It is considered that this method of education will be available as an alternative to clinical training education.

References