Development and Evaluation of a Medication Administration Education Program Based on Augmented Reality

Songxian Jin

College of Nursing, The Catholic University of Korea, Seoul, South Korea

Seung-Yi Choi

College of Nursing, The Catholic University of Korea, Seoul, South Korea

Jung-Hee Kim *

Professor, College of Nursing, The Catholic University of Korea, Seoul, South Korea

Abstract:

Background: Due to recent technological developments, augmented reality (AR) content that can provide opportunities to visualize complex concepts. Since AR has limitations of high costs and lack of facilities, when used with students' own smartphones can be more effective. Thus, it may be clinically beneficial to develop and examine the utility of an AR-based medication administration education program using smartphones.

Objectives: This study developed an educational augmented reality medication administration program for undergraduate nursing students and examined its effects on drug dosage calculation competency, and self-confidence in drug dosage calculation and infusion pump use.

Setting: Two universities in Republic of Korea.

Design: This study had two research phases for developing an AR-based medication administration educational program for undergraduate nursing students in the first phase and to examine the effectiveness of an AR-based medication administration education program using a pretest–posttest randomized control group design in the second phase.

Participants: Forty-seven sophomore nursing students who received education in medication administration as part of their fundamentals of nursing course were divided into the experimental and control groups.

Methods: An online questionnaire was used to collect data on participant characteristics, drug dosage calculation competency, and self-confidence in drug dosage calculations and infusion pump use. The collected data were analyzed using repeated-measures analysis of variance and independent t-tests.

Results: A significant interaction was observed between the group and time for self-confidence in drug dosage calculations and infusion pump use.

Conclusions: This study was the first attempt at developing and evaluating an augmented reality-based medication administration educational program using smartphone. Our findings suggest that such programs can be a useful learning tool and help effectively integrate medication administration into nursing education.