# Effectiveness of Drama-Based Video Simulation Learning to Enhance Clinical Reasoning and Learning Competency among Nursing Students

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# 간호대학생의 임상 추론 및 학습 역량 강화를 위한 드라마 기반 비디오 시뮬레이션 교육 효과

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Abstract

Clinical reasoning is a core competency essential for professional nursing practice. To enhance clinical reasoning competency, various simulation-based educational strategies have been used in nursing education. This study aimed to examine the effectiveness of a drama-based video simulation learning program in improving nursing undergraduate nursing students' clinical reasoning, learning flow, and virtual simulation-based learning competency. A one-group pretest-posttest study design was used. A second-year undergraduate nursing students were participated in this study. Data were collected from March to June 2024 and analyzed using the Wilcoxon signed-rank test with IBM SPSS Statistics 25.0. The results showed statistically significant improvements in clinical reasoning ($Z=-3.12$, $p=.002$), learning flow ($Z=-3.52$, $p<.001$), and virtual simulation-based learning competency ($Z=-3.52$, $p<.001$) after the educational intervention. These results suggest that the drama-based video simulation learning program is effective in enhancing clinical reasoning and learning competency among undergraduate nursing students. The study findings highlight the potential of this educational methodology approach as a complementary strategy to high-fidelity simulation education, providing a foundation for the diversification of simulation methodologies in nursing education.

## 1. Introduction

Clinical reasoning is an essential competency for professional nursing practice, enabling nurses to make appropriate decisions and provide effective care in complex clinical settings[1,2]. Strengthening clinical reasoning competency among undergraduate nursing students is a key learning objective in nursing education, as it prepares them to accurately assess patient conditions, identify nursing problems, and implement optimal nursing interventions [3,4].

Among various simulation educational methods, virtual reality-based simulation offers the advantage of flexible learning, provides the benefit of flexible learning by enabling students to engage with diverse clinical scenarios regardless of time or location constraints [5]. Drama-based video simulation is an educational method that integrates emotional and narrative elements into simulation-based learning and is effective in enhancing students' immersion and simulation capabilities by providing story-oriented clinical scenarios [6]. However, previous studies on the effect of drama-based video simulation on nursing education are insufficient. Therefore, further studies are needed to evaluate the educational impact on key competencies such as clinical reasoning, simulation learning flow, and virtual simulation learning competency.

The purpose of this study is to examine the effectiveness of a drama-based video simulation learning program in enhancing undergraduate nursing students' clinical reasoning, learning flow, and virtual simulation-based learning competency.

## 2. Methods

### 2.1 Research Design

This study is a quasi-experimental study with one group pretest-posttest design to evaluated the effectiveness of drama-based video simulation learning program for undergraduate nursing students.

### 2.2 Participants and Data Collection

The participants in this study were second-year undergraduate nursing students who fully understood the purpose of the research and voluntarily agreed to participate. A total of 16 undergraduate nursing students participated in the study. Data were collected from March to June 2024. Participants completed a pretest before to the educational intervention program and a posttest after the program was completed.

### 2.3 Interventions and Learning Outcomes

In this study, drama-based video for adult nursing in simulation program was used. Respiratory-cardiovascular emergency nursing practice for adult nursing module were selected. The intervention was conducted twice for 3 hours, and a total of 6 hours of drama-based video simulation learning program were provided. In order to analyze the effect of the intervention, clinical reasoning, learning flow, and virtual simulation-based learning competency were collected as outcome variables (Figure 1).

Figure 1. Drama-based Video for Adult Nursing in Simulation Program
Image source: https://www.dreamnurse.co.kr/course/course_view.jsp?id=165890&cid=114519#course-view-165890

### 2.4 Statistical Analysis

The collected data were analyzed using the descriptive statistics and Wilcoxon signed-rank test with IBM SPSS Statistics 25.0.

## 3. Results

### 3.1 Demographic Characteristics

A total of 16 second-year undergraduate nursing students participated in this study. The mean age was 21.6±1.55 years.

### 3.2 Intervention Outcomes

The clinical reasoning (Z=-3.12, p=.002), learning flow (Z=-3.52, p<.001), and virtual simulation-based learning competency (Z=-3.52, p<.001) were statistically significant improvements (Table 1).

[Table 1] Comparison of learning outcomes between pretest and posttest (N=16)

| Variables | Pre | Post | Z | p |
|---|---|---|---|---|
| | Mean±SD | | | |
| Clinical reasoning | 3.38±0.75 | 3.89±0.64 | -3.12 | .002 |
| Learning flow | 3.48±0.51 | 4.39±0.49 | -3.52 | <.001 |
| virtual simulation-based learning competency | 3.43±0.52 | 5.97±0.64 | -3.52 | <.001 |

## 4. Conclusions

The drama-based video simulation learning program is effective in enhancing clinical reasoning and learning competency among undergraduate nursing students. These findings suggest that this educational method has important potential as a complementary simulation-based learning strategy for traditional high-fidelity simulations education. Furthermore, it provides a meaningful foundation for expanding and diversifying simulation methodologies in nursing education. This study is expected to provide evidence that can be used as an innovative educational strategy by integrating drama-based simulation into the nursing education.

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