



## Effects of Simulation-Based Education on Critical Thinking Disposition and Problem-Solving Capacity of Nursing College Students According to Types of Debriefing

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### Dear Editor-in-Chief

The scope of nursing students' nursing performance is very limited, as it is difficult to effectively practice clinical practice due to the recent lack of clinical practice educational institutions and the increase in patient claims (1).

Due to such a situation, which allows college nursing students to actively gain fieldwork knowledge and skills, has become an alternative to resolve this problem (2, 3). Simulation consists of pre-briefing, simulation operation and debriefing. Through debriefing, students have an opportunity to reflect over the performance process allowing them to have an increased level of performance confidence (3). Video debriefing allows students to more carefully think about and reflect on their performance, as well as that of others, while also enhancing self-confidence by allowing them to self-discover what they did well and what they did wrong (4). Through written debriefing, learning becomes personalized since knowledge is acquired through deduction as students look back and focus on their behaviors, feelings, and experiences while they write (5). Debriefing is widely used since it is most effective in improving the clinical performance capacity of nursing students.

Therefore, it is necessary to conduct research to verify the level of educational achievement and effect based on the type of debriefing. In this regard, this study aimed to conduct simulation for nursing students as well as to propose the method that can effectively conduct simulation by confirming the effects of debriefing on critical thinking disposition and problem-solving capacity based on the type of debriefing.

This study is a quasi-experimental study using non-equivalent control group pretest-posttest design, and the comparative research was conducted between video debriefing and written debriefing. This study began data collection and intervention after obtaining the approval of the Institutional Review Board of the institute (WKIRB-201708-SB-067).

The subjects of this study were third year college nursing students enrolled in S university located in Korea. The following were the detailed criteria for selecting study participants: 1) not having experience with simulation using the high-fidelity simulator METI and 2) providing consent to participate in the study. The researcher developed a six-month simulation program for subjects to deal with dyspnea, and the program was applied



from September 2017 in which debriefing was conducted. A total of 108 students both volunteered and provided consent to participate in this study with 53 for the experimental group and 55 for the control group.

After the simulation was finished, the control group handwrote the contents of the debriefing. The contents for reflecting were classified into the areas of noticing, interpreting, responding and reflecting. The experimental group watched the video of the simulation performance. In the stage of noticing, they were directed to reflect on the unexpected patient situation. In the stage of interpreting, they were directed to reflect on what was most important to the patient and on how to set priorities for nursing interventions. In the stage of responding, subjects presented their opinions on the intervention, the reporting methods, etc. In the stage of reflecting, they were

asked to reflect on how they would have behaved if they had been faced with a situation similar to the scenario.

The data was analyzed with the SPSS 23.0 program (Chicago, IL, USA) used to calculate the mean, standard deviations, t-test and a two-way repeated ANOVA.

As a result, the two groups, which had performed structured debriefing, showed high scores for critical thinking disposition, problem-solving capacity and satisfaction level with learning, but there was no difference between the two groups (Table 1, 2). Among several types of debriefing, structured debriefing is the most appropriate method of self-reflection that integrates critical thinking and problem-solving capacity so that learners can make reasonable decisions in clinical situations than other types of debriefing, such as video debriefing or written debriefing.

**Table 1:** Comparison of critical thinking disposition and problem-solving ability

| <i>Variables</i>              | <i>Groups</i>                    | <i>Before</i>                | <i>After</i> | <i>Source</i> | <i>F</i>     | <i>p</i>      |
|-------------------------------|----------------------------------|------------------------------|--------------|---------------|--------------|---------------|
|                               |                                  | Mean (Standard Deviation)    |              |               |              |               |
| Critical thinking disposition | Video-assisted debriefing (n=53) | md=.19, P=<.001<br>3.45(.04) | 3.64(.05)    | Group Time    | .04<br>45.58 | .842<br><.001 |
|                               | Written debriefing (n=55)        | md=.22, P=<.001<br>3.45(.04) | 3.67(.05)    | Group*Time    | .29          | .592          |
| Problem-solving ability       | Video-assisted debriefing (n=53) | md=.04, P=.040<br>3.46(.05)  | 3.50(.05)    | Group Time    | 1.29<br>2.82 | .258<br>.096  |
|                               | Written debriefing (n=55)        | md=.05, P=.038<br>3.38(.05)  | 3.43(.05)    | Group*Time    | .03          | .867          |

md= mean difference

**Table 2:** Comparison of learning satisfaction

| <i>Variables</i>      | <i>Video-assisted debriefing (n=53)</i> | <i>Written debriefing (n=55)</i> | <i>t</i> | <i>p</i> |
|-----------------------|---|----------------------------------|----------|----------|
|                       | Mean (Standard Deviation)               |                                  |          |          |
| Learning satisfaction | 3.92±.53                                | 3.87±.59                         | .393     | .695     |

As there has been no preceding study that applied and performed structured video debriefing and written debriefing, it is thus recommended to conduct repetitive research using these tools. Moreover, it is also proposed to conduct a longitudinal study to confirm whether critical thinking disposition and problem-solving capacity enhanced by structured debriefing actually lead to increased clinical performance in the clinical setting.

### Conflict of interest

The authors declare that there is no conflict of interests.

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