

Applying Clinical Judgment Rubric for Evaluation of Simulation Practice for Nursing Students : A Non-Randomized Controlled Trial

Hyun-Ju Kim

Department of Nursing,

Catholic University of Pusan #57, Oryundae-ro, Geumjeong-gu, Catholic University of Pusan Busan,
Republic of Korea

ABSTRACT

The purpose of this study is to investigate the effects of debriefing using Lasater's Clinical Judgment Rubric to study nursing students' academic self-efficacy, clinical performance, and clinical judgment. The experiment group was subjected to debriefing by applying the Clinical Judgment Rubric, while general debriefing was applied to the control group. The results of the study are as follows: Clinical judgment scores were improved after debriefing for both groups, significantly higher for students in the experimental group compared to the control group. However, there was no significant difference between the two groups in academic self-efficacy or clinical performance. In conclusion, the debriefing based on the Clinical Judgment Rubric used in this study proved to be effective in improving the clinical judgment of nursing students.

Key words: *Self-efficacy, Clinical Performance and Clinical Judgment.*

1. INTRODUCTION

1.1 General Appearance

Nursing education aims to provide professional nurses with the abilities they need to perform their jobs. Nursing courses should supply nursing students with nursing skills as well as theoretical knowledge [1]. Today's medical environment emphasizes the nurse's ability to judge complex clinical situations and determine the necessary intervention according to the increasing number of ailments requiring professional and complex management, and the increasing severity of the patient's condition [2]. Clinical judgment refers to interpreting or concluding a patient's needs, concerns, or health problems, deciding on an action, and modifying the treatment according to the patient's response. Such clinical judgments are very complex and incorporate not only an understanding of the diagnostic aspects of a patient's clinical status, but also the patient, their family, their emotional strength, and their coping resources [3], [4]. Therefore, nursing students must learn educational strategies for improving clinical judgment skills. However, there is a continuing debate on the limitations of clinical practice education in nursing students, such as clinical practice being more advanced than that taught in classrooms, and rejection of nursing students' practice in order to learn nursing skills in the current clinical practice

environment. Therefore, the need for simulation training is increasing [5].

Simulation training creates a hypothetical scenario that is a duplication of the actual clinical situation. It provides a practical and interactive clinical training environment by utilizing the patient simulator so that the learning occurs in the process of the learner himself directly solving the problem. The simulation consists of scenario simulation and debriefing. The debriefing is a discussion led by the instructor after the simulation. In this process, students are able to express their feelings during the simulation, ask questions, be encouraged, and reflect and give feedback to themselves and to each other. In order for the simulation experience to be learned, the learning link between behavior and reflection is connected, and clinical reasoning and clinical judgment are developed through reflection [6]. However, if the instructor is not prepared to debrief most of the learning during the simulation training and therefore is ineffective, this may adversely affect the learner's educational performance or attitude [7]. Structured debriefing can improve clinical judgment, but lacks an in-depth discussion of the characteristics of effective debriefing, and continues to seek more effective debriefing methods and effects in order to develop evidence-based practices. This is necessary to do [7]-[9]. In particular, Lasater's [10] clinical judgment rubric was developed to help nursing educators improve nursing students' clinical judgment using Tanner's analytical model of clinical judgment [4]. In addition, reliability and validity have been reported in the evaluation of clinical judgment in nurse simulation training [2]. The theory of self-efficacy has been supported by the findings of a number of studies [11], in which

* Corresponding author, Email: hjkim@cup.ac.kr
Manuscript received May. 25, 2018; revised Jun. 22, 2018;
accepted Jun. 22, 2018

students were more likely to achieve success in school when they believed that they could succeed on their own.

In this study, we applied Tanner’s clinical judgment rubric as a method for evaluating simulation exercise practice [10] and analyzing the effects of nursing students on academic self-efficacy, clinical performance and clinical judgment.

2. METHODS

2.1 Research design

The research process is shown in Fig. 1.

Research design is a similar experimental study of 42 students in their fourth year of nursing studies. Participants understand and agree with the purpose of the study and its design. There are 20 students in the experimental group and 22 in the control group.

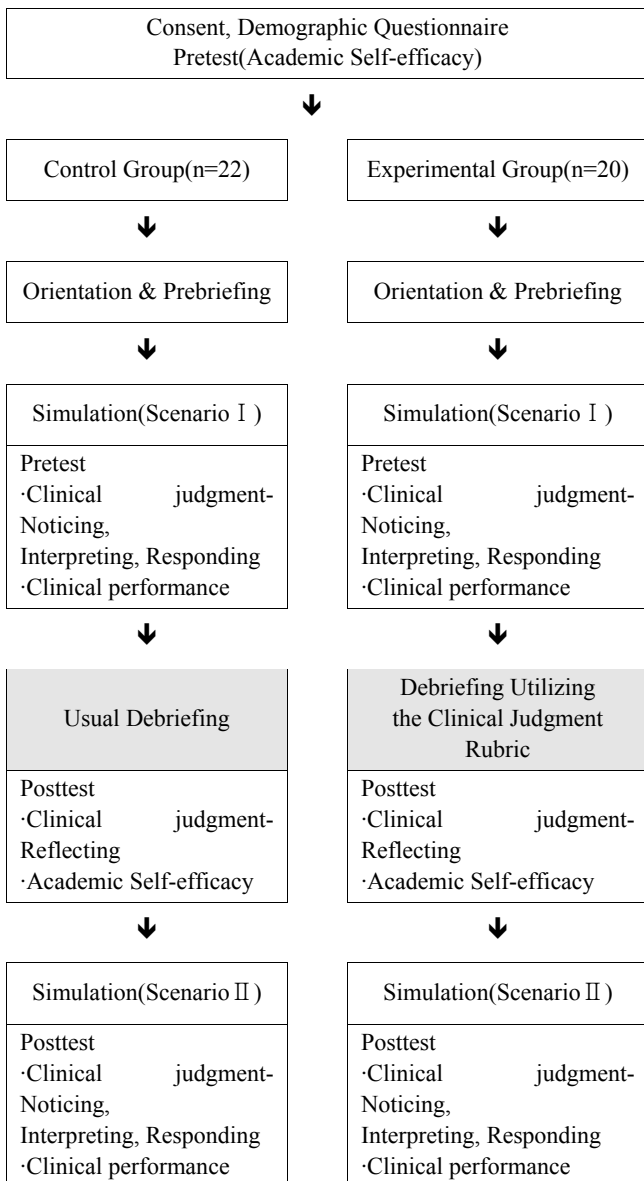


Fig. 1. Research process

When two nursing students became a group and performed the nursing scenario I simulation for 10 minutes, the debriefing allowed the students to check their recorded images for 10 minutes. The team participated in a brief 40-minute debriefing session with 20 minutes of feedback and discussion based on the debriefing script using the clinical judgment rubrics, followed by a reflection log for self-evaluation, which each team member used for 10 minutes. After the debriefing, the team spent 10 minutes in the scenario II simulation. All the procedures were recorded, and the recorded simulation before and after debriefing was followed by a clinical judgment rubric.

The control group was debriefed according to general debriefing guidelines, and the rest of the configuration was carried out in the same order as that of the experimental group.

2.2 Research tools

2.2.1 Academic self-efficacy

In order to measure academic self-efficacy, 28 items of the 5-point scale developed by Kim and Park [12] were used. Each item is on the Likert scale, ranging from a score of 5. The reliability of the instrument at the time of development was .79~.87. Cronbach's α in this study was .86~.89.

2.2.2 Clinical judgment

The Lasater Clinical Judgment Rubric (LCJR) developed by Lasater [10] consisted of three items of cognition, two items of analysis, four items of response, and two items of reflection. The score of each item ranges from 1 to 4, with a total score ranging from 11 to 44; the higher the score, the higher the clinical judgment. Cronbach's α was .88 in LCJR development, and Cronbach's α in this study was .74.

2.2.3 Clinical performance

In the clinical performance evaluation tool of the spinal surgery patient simulation presented by the Korea Nursing Evaluation Institute, the final 23 items were composed by the researcher's checklist to evaluate the clinical technic according to the situation of scenario I and scenario II. Each item is measured by the Likert scale of "missing or inaccurate performance," "partial performance," and "complete performance." Cronbach's α in this study was .70.

2.3 Data analysis

The collected data were analyzed using the SAS (ver. 9.2) statistical program. The general characteristics of the participants were presented as frequency, percentage, mean, and standard deviation. The t-test, chi-square test, and Fisher's exact test were used for the general characteristics and the homogeneity test of the preliminary data. Differences in pre- and post-training effects were analyzed using paired t-test and ANOVA.

3. RESULTS

3.1 Examination of homogeneity between general characteristics and dependent variables

There was no difference between the two groups in terms of general characteristics, pre academic self-efficacy (p= .18), clinical performance (p= .51), and clinical judgment (p= .15) (Table 1), (Table 2).

3.2 Comparison of academic efficacy, clinical judgment and clinical performance in both groups

The experimental group, which applied the debriefing based on the clinical judgment model, had an academic self-efficacy score increase, from 3.08 before the experiment to 3.13 after the experiment. There was no significant difference between the experimental and control groups (p=.87).

The clinical performance score of the experimental group with the debriefing and that of the control group with the general debriefing were analyzed based on the clinical judgment model in the simulation exercise evaluation. The clinical performance score of the experimental group increased from 26.10 points before the experiment to 30.80 points after the experiment, and the control group's score increased from 25.00 to 28.09. There was no significant difference between the two groups (p=.38).

The clinical judgment score of the experiment group increased from 17.30 points before the experiment to 31.70 points after the experiment, and the clinical judgment score of the control group increased from 16.09 points to 27.08 points. There was a significant difference between the two groups (p=.02) (Table 3).

Table 1. Homogeneity test according to general characteristics

Variables	Exp.	Cont.	t /X ²	p
	Mean±SD or n(%)	Mean±SD or n(%)		
Age(Yr)	21.80 ± 0.89	22.09 ± 0.75	- 1.15	.25
Sex	Man	1(4.55)	0.93	1.0
	Woman	20(100.00)	21(95.45)	
Major motive	In aptitude	4(20.00)	7(31.82)	1.75 .46
	Invitation of others	2(10.00)	4(18.18)	
	Good job prospects	14(70.00)	11(50.00)	
Major satisfaction	Not very satisfied	3(15.00)	5(22.73)	3.70 .21
	Satisfaction	17(85.00)	14(63.64)	
	Very satisfied	0(0.00)	3(13.64)	

Clinical practice satisfaction	Not at all	0(0.00)	1(4.55)	3.55	.39
	Not very satisfied	6(30.00)	8(36.36)		
	Satisfaction	14(70.00)	11(50.00)		
	Very satisfied	0(0.00)	2(9.09)		
Last semester grade	4.0 ≥	4(20.00)	2(9.09)	1.50	.69
	3.5 ≤ 4.0	9(45.00)	9(40.91)		
	3.0 ≤ 3.5	6(30.00)	9(40.91)		
	3.0 <	1(5.00)	2(9.09)		
Confidence in nursing practice	High	0(0.00)	2(9.09)	3.04	.27
	Moderate	13(65.00)	16(72.73)		
	Low	7(35.00)	4(18.18)		
Problem- solving ability	High	0(0.00)	1(4.55)	1.16	.84
	Moderate	16(80.00)	18(81.82)		
	Low	4(20.00)	3(13.64)		
Degree of self- expression	Good	2(10.00)	5(22.73)	1.22	.57
	Usually	15(75.00)	14(63.64)		
	Bad	3(15.00)	3(13.64)		

Exp.: Experimental Cont.: Control

Table 2. Homogeneity test according to dependent variable

Variables	Exp.	Cont.	t	p
	Mean ± SD	Mean ± SD		
Academic self-efficacy	3.08±0.44	3.25±0.37	-1.34	.18
Clinical judgment	17.30±3.21	16.09±2.15	1.44	.15
Clinical performance	26.10±6.56	25.00±3.80	0.66	.51

Exp.: Experimental Cont.: Control

Table 3. Comparison of academic self-efficacy, clinical judgment, and clinical performance between the two groups

Variables	Group	Before (Mean±SD)	After (Mean±SD)	t ^a	P	Difference (After-Before)	t ^b	P																																																																																																																																																																																																															
Academic self-efficacy	Exp	3.08±0.44	3.13±0.45	1.07	.30	0.05±0.23	0.16	.87																																																																																																																																																																																																															
	Cont	3.25±0.37	3.29±0.37	0.93	.36	0.04±0.22			Task difficulty	Exp	2.65±0.45	2.80±0.40	1.89	.07	0.15±0.35	0.97	.33	Cont	3.05±0.44	3.10±0.49	0.75	.46	0.05±0.31	Reduce self-efficacy	Exp	3.49±0.55	3.52±0.43	0.51	.61	0.03±0.30	-0.85	.39	Cont	3.40±0.39	3.53±0.39	1.55	.13	0.12±0.38	Confidence	Exp	3.10±0.75	3.06±0.86	-0.35	.73	-0.03±0.40	0.26	.79	Cont	3.30±0.74	3.23±0.84	-0.77	.44	-0.06±0.37	Clinical judgment	Exp	17.30±3.21	31.70±3.70	12.49	<.001	14.40±5.15	2.36	.02	Cont	16.09±2.15	27.09±3.50	12.33	<.001	11.00±4.18	Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81	Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15
Task difficulty	Exp	2.65±0.45	2.80±0.40	1.89	.07	0.15±0.35	0.97	.33																																																																																																																																																																																																															
	Cont	3.05±0.44	3.10±0.49	0.75	.46	0.05±0.31			Reduce self-efficacy	Exp	3.49±0.55	3.52±0.43	0.51	.61	0.03±0.30	-0.85	.39	Cont	3.40±0.39	3.53±0.39	1.55	.13	0.12±0.38	Confidence	Exp	3.10±0.75	3.06±0.86	-0.35	.73	-0.03±0.40	0.26	.79	Cont	3.30±0.74	3.23±0.84	-0.77	.44	-0.06±0.37	Clinical judgment	Exp	17.30±3.21	31.70±3.70	12.49	<.001	14.40±5.15	2.36	.02	Cont	16.09±2.15	27.09±3.50	12.33	<.001	11.00±4.18	Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81	Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01												
Reduce self-efficacy	Exp	3.49±0.55	3.52±0.43	0.51	.61	0.03±0.30	-0.85	.39																																																																																																																																																																																																															
	Cont	3.40±0.39	3.53±0.39	1.55	.13	0.12±0.38			Confidence	Exp	3.10±0.75	3.06±0.86	-0.35	.73	-0.03±0.40	0.26	.79	Cont	3.30±0.74	3.23±0.84	-0.77	.44	-0.06±0.37	Clinical judgment	Exp	17.30±3.21	31.70±3.70	12.49	<.001	14.40±5.15	2.36	.02	Cont	16.09±2.15	27.09±3.50	12.33	<.001	11.00±4.18	Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81	Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																											
Confidence	Exp	3.10±0.75	3.06±0.86	-0.35	.73	-0.03±0.40	0.26	.79																																																																																																																																																																																																															
	Cont	3.30±0.74	3.23±0.84	-0.77	.44	-0.06±0.37			Clinical judgment	Exp	17.30±3.21	31.70±3.70	12.49	<.001	14.40±5.15	2.36	.02	Cont	16.09±2.15	27.09±3.50	12.33	<.001	11.00±4.18	Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81	Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																										
Clinical judgment	Exp	17.30±3.21	31.70±3.70	12.49	<.001	14.40±5.15	2.36	.02																																																																																																																																																																																																															
	Cont	16.09±2.15	27.09±3.50	12.33	<.001	11.00±4.18			Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81	Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																									
Recognition	Exp	5.20±1.19	8.20±1.93	5.63	<.001	3.00± 2.38	1.62	.11																																																																																																																																																																																																															
	Cont	4.63±0.78	6.72±0.98	12.09	<.001	2.09±0.81			Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13	Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																								
Interpretation	Exp	4.40±0.82	6.50±1.05	5.80	<.001	2.10±1.61	-2.52	.01																																																																																																																																																																																																															
	Cont	3.54±0.80	6.72±0.88	13.10	<.001	3.18±1.13			Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62	Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																							
Reaction	Exp	7.70±1.59	11.30±1.30	8.46	<.001	3.60±1.90	2.75	.008																																																																																																																																																																																																															
	Cont	7.90±1.26	9.54±1.81	2.92	0.08	1.63±2.62			Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68	Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																						
Reflection	Exp	none	5.70±0.47	54.22	<.001	5.70±0.47	8.80	<.001																																																																																																																																																																																																															
	Cont	none	4.09±0.68	28.06	<.001	4.09±0.68			Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10	Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																					
Clinical performance	Exp	26.10±6.56	30.80±3.18	2.80	.01	4.70±7.49	0.89	.38																																																																																																																																																																																																															
	Cont	25.00±3.80	28.09±2.36	4.68	.0001	3.09±3.10			Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49	Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																				
Pre-preparations	Exp	1.60±0.50	1.80±0.41	1.16	.25	0.20±0.76	-2.21	.03																																																																																																																																																																																																															
	Cont	1.09±0.29	1.72±0.45	6.06	<.001	0.63±0.49			Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16	Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																																			
Identify the subject	Exp	2.20±1.00	2.80±1.50	2.56	.01	0.60±1.04	0.96	.34																																																																																																																																																																																																															
	Cont	2.09±0.52	2.36±1.17	1.10	.28	0.27±1.16			Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85	Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																																																		
Assessment	Exp	8.80±3.42	8.95±0.60	0.18	.85	0.15±3.71	1.25	.22																																																																																																																																																																																																															
	Cont	9.36±1.59	8.36±1.09	-2.53	.01	-1.0±1.85			Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05	Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																																																																	
Planning and intervention	Exp	9.30±2.63	13.60±2.01	4.54	.002	4.30±4.23	1.51	.14																																																																																																																																																																																																															
	Cont	9.90±2.52	12.63±1.09	6.24	<.001	2.72±2.05			Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																																																																																
Evaluation	Exp	3.30±1.45	3.60±0.68	0.81	.42	0.30±1.65	-0.37	.71																																																																																																																																																																																																															
	Cont	2.54±0.67	3.00±1.15	2.11	.04	0.45±1.01																																																																																																																																																																																																																	

Exp.: Experimental Cont.: Control

4. DISCUSSION

The purpose of this study was to investigate the effects of nursing students' academic self-efficacy, clinical performance, and clinical judgment in gastrectomy surgery and spinal surgery patients by applying debriefing using clinical judgment rubrics. Debriefing using the clinical judgment rubric was conducted in the order of 11 items in the clinical judgment rubrics 4 areas, and the instructor proceeded to debrief according to the script according to the clinical judgment rubrics step.

The results of this study showed that there was no significant difference in the academic self-efficacy between Lasater's clinical judgment rubrics and those with debriefing and general debriefing. Direct comparison is difficult because there is no study comparing Lasater's clinical judgment rubrics with academic self-efficacy. However, academic self-efficacy is the individual's belief that the learner organizes and executes the actions necessary to accomplish the task in order to successfully achieve the given learning task. Therefore, it is said that academic self-efficacy has a significant influence on critical thinking disposition and problem solving ability [13].

In particular, the goal of nursing education is to be able to synthesize and autonomously collect information in a variety of situations. In Eun & Bang's study, Lasater's clinical judgment rubric was used to perform a general debriefing Problem solving abilities were improved [14]. It is important to understand the level of academic self-efficacy of nursing students because the clinical judgment of nurses is the same as the activities to solve problems through nursing process of assessment, diagnosis, planning, performance, and evaluation.

Clinical performance was significantly improved in both groups, but there was no significant difference between the two groups.

However, the difference between the pre-post test scores of the experimental group with debriefing using Lasater's clinical judgment rubrics was greater than that of the control group with general debriefing. Preliminary preparation in the detail area was significantly improved in the experimental group. This is in part consistent with the findings of Jung & Choi [9] that clinical performance was improved after end-of-life nursing education. In conclusion, the debriefing based on the clinical judgment rubric will improve clinical performance. However, in Jung & Choi's study [9], problem-based learning was applied during the research process to confirm clinical performance. Therefore, further studies should be conducted to verify the effect of debriefing using clinical judgment rubrics on clinical performance.

Clinical judgment rubrics were significantly higher in the experimental group, but academic self-efficacy scores were not significantly different from the control group. Clinical performance was significantly improved in both groups, but there was no significant difference between the two groups. Clinical judgment using the debriefing rubric was designed to identify issues with problem solving in the experience situation, and priorities were set according to the results. The structuring of reflection through the debriefing using the clinical judgment rubrics was effective in developing clinical judgment; it positively influenced the reflection area in particular.

In conclusion, the debriefing using the clinical judgment rubrics improved clinical judgment by improving students' abilities to judge according to the problem situation, to reflect on the result and to determine future performance accordingly. Evaluation of clinical judgment in simulation performance can be used to directly predict the abilities of nursing students in practice [2], [10], [15].

In this way, it can be an effective tool for confirming clinical reasoning ability based on the integrated application of knowledge and nursing skills as the learning performance index in the nursing evaluation center. In this sense it may be considered a means of mediation.

REFERENCES

- [1] Y. H. Shin, H. K. Hur, S. M. Park, H. Y. Song, and G. Y. Kim, "Development of an Integrated Clinical Nursing Practice Course for Improvement of Nursing academic society of nursing education," *Journal of Korean Academic Society of Nursing Education*, vol. 13, no. 1, 2007, pp. 32-40.
- [2] K. Lasater, "Clinical Judgement: The Last Frontier for Evaluation," *Nurse Education in Practice*, vol. 11, no. 2, 2011, pp. 86-92.
- [3] J. T. Kim, "Analyses of Characteristics of U-Healthcare System Based on Wireless Communication," *Journal of Information and Communication Convergence Engineering*, vol. 10, no. 4, 2012, pp. 337-342.
- [4] C. A. Tanner, "Thinking like a nurse: A Research-Based Model of Clinical Judgment in Nursing," *Journal of Nursing Education*, vol. 45, no. 6, 2006, pp. 204-211.
- [5] H. J. Kim, "Effects of a Simulation-Based Debriefing Using Video in Nursing Education," *Information*, vol. 20, no. 8a, 2017, pp. 5509-5514.
- [6] L. G. Ha, *The Effects of Debriefing Utilizing the Clinical Judgment Rubric on Nursing Students' Clinical Judgment, Knowledge and Self-Confidence*, Unpublished Doctoral Dissertation, Seoul National University, Seoul, 2014.
- [7] A. Cheng and D. I. Rodgers, "Evolution of the Pediatric Advanced Life Support Course: Enhanced Learning with a New Debriefing Tool and Web-Based Module for Pediatric Advanced Life Support Instructors," *Pediatric Critical Care Medicine*, vol. 13, no. 5, 2012, pp. 589-595.
- [8] B. Mariani, M. A. Cantrell, C. Meakim, P. Prieto, and K. T. Dreifuerst, "Structured Debriefing and Students' Clinical Judgment Abilities in Simulation," *Clinical Simulation in Nursing*, vol. 9, no. 5, 2013, pp. e147-e155.
- [9] K. I. Jung and J. Y. Choi, "Effect of Debriefing Based on the Clinical Judgment Model on Simulation Based Learning Outcomes of End-of-Life Care for Nursing Students : A Non-Randomized Controlled Trial," *Journal of Korean Academy of Nursing*, vol. 47, no. 6, 2017, pp. 842-853.
- [10] K. Lasater, "Clinical Judgment Development; Using Simulation to Create an Assessment Rubric," *Journal of Nursing Education*, vol. 46, no. 11, 2007, pp. 496-503.
- [11] S. R. Song and Y. J. Kim, "Effect of a Self-Evaluation Method Using Video Recording on Competency in

Nursing Skills, Self-Directed Learning Ability, and Academic Self-efficacy,” *Journal of Korean Fundamentals of Nursing*, vol. 22, no. 4, 2015, pp. 416-423.

- [12] A. Y. Kim and I. Y. Park, “Development and Validation of Academic Self-Efficacy,” *Korean Journal of Educational Research*, vol. 39, no. 1, 2001, pp. 95-126.
- [13] Y. H. Kim and Y. A. Kim, “The Influence of Academic Self-Efficacy, and Critical Thinking Disposition on Problem Solving Ability of Nursing Students,” *Journal of the Korea Academia-Industrial Cooperation Society*, vol. 17, no. 9, 2016, pp. 589-598.
- [14] Y. Eun and S. Y. Bang, “Effects of the Lasater’s Clinical Rubric of Debriefing in Advanced Cardiovascular Life Support Training,” *The Korea Contents Society*, vol. 16, no. 4, 2016, pp. 516-527.
- [15] D. Ogay and E. G. Kim, “Heuristics for Motion Planning Based on Learning in Similar Environments,” *Journal of Information and Communication Convergence Engineering*, vol. 12, no. 2, 2014, pp. 116-121.

**Hyun-Ju Kim**

She is received the Ph.D in education from Catholic university, Korea in 2009, with a rich clinical experience in ICU. Currently, an associate professor in the Catholic University of Pusan, Nursing College, and is educating mainly on adult nursing and fundamental basic nursing. Major research interests include

simulation studies utilizing standardized patients for strengthening the core competencies of nursing practice students. And rehabilitation programs and nursing interventions for stroke patients.