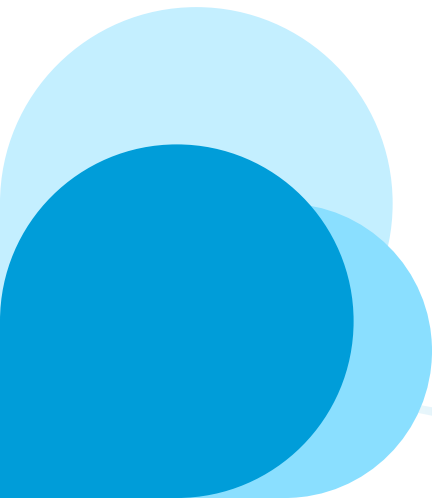



# **The effectiveness of a nursing simulation-based learning program on students' competence and learning satisfaction**




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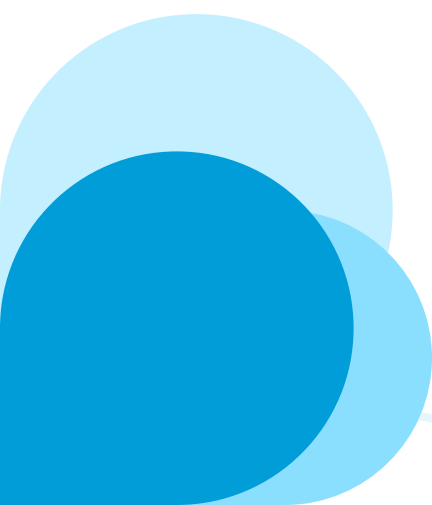



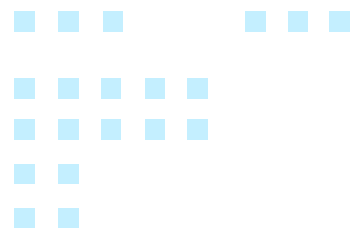
# Background

- Simulation-based nursing education was popular recently and have strong educational effects, with particularly large effects in the psychomotor domain (Kim, Park, & Shin, 2016).
  - We built simulation.
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# Purposes

- to evaluate the effects of a simulation-based learning program on nursing students' perception of their competence and learning satisfaction.
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# Methods





# Design



- A quasi-experimental control pre-test and post-test design was used.
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# Participants

- A convenience sample of 108 sophomores in a nursing department of a technological university were recruited at the end of their sophomore year.
- A total of 45 students decided to enroll in the simulation-based program, but three of them dropped out from the program one semester later.
- Experimental group (N=42)
- Control group (N=66)



# Simulation-based program

- Included four simulation-based courses
    - medical-surgical nursing simulation lab
    - obstetric-pediatric nursing simulation lab
    - psychiatric nursing and public health nursing lab
    - comprehensive nursing simulation lab in the third year of college
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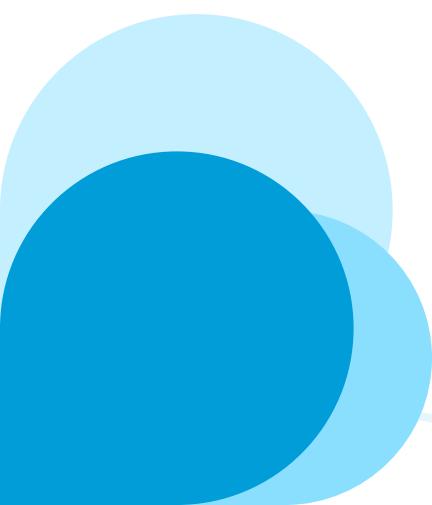







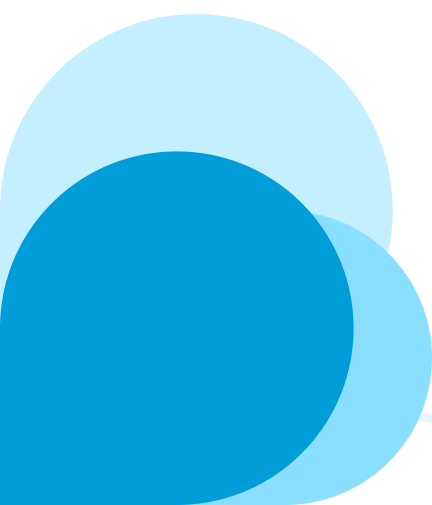



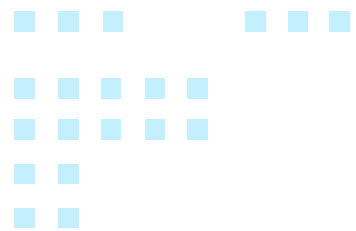
# Questionnaire

- A nursing competence scale and a learning satisfaction scale that developed by the authors were used to evaluate the effectiveness of the program.
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# Data Analysis

- Data were analyzed using IBM SPSS Statistics Base 22.0 for windows.
    - Descriptive statistics
    - Independent t-test
    - ANCOVA
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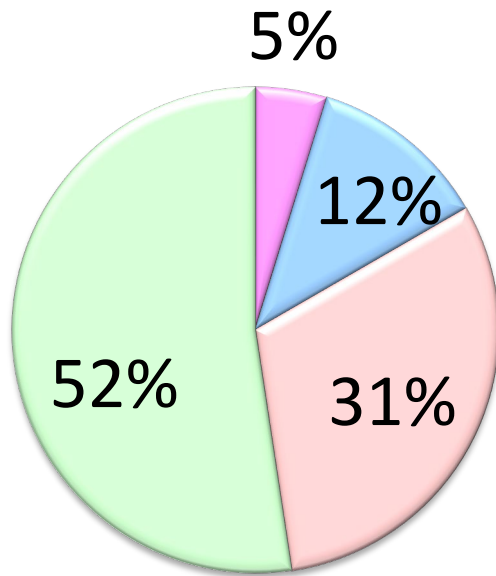


# Results

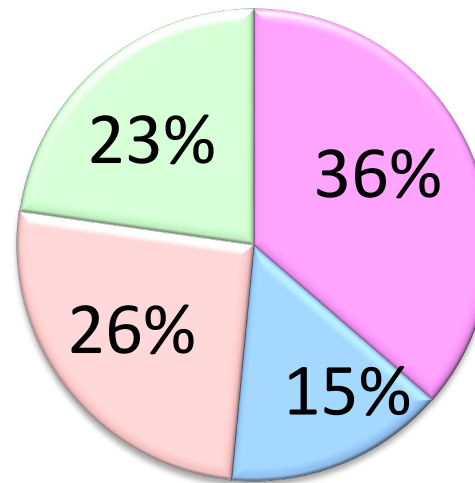


# Pass Rate of OSCE Test

**Experimental group**  
( $N = 42$ )

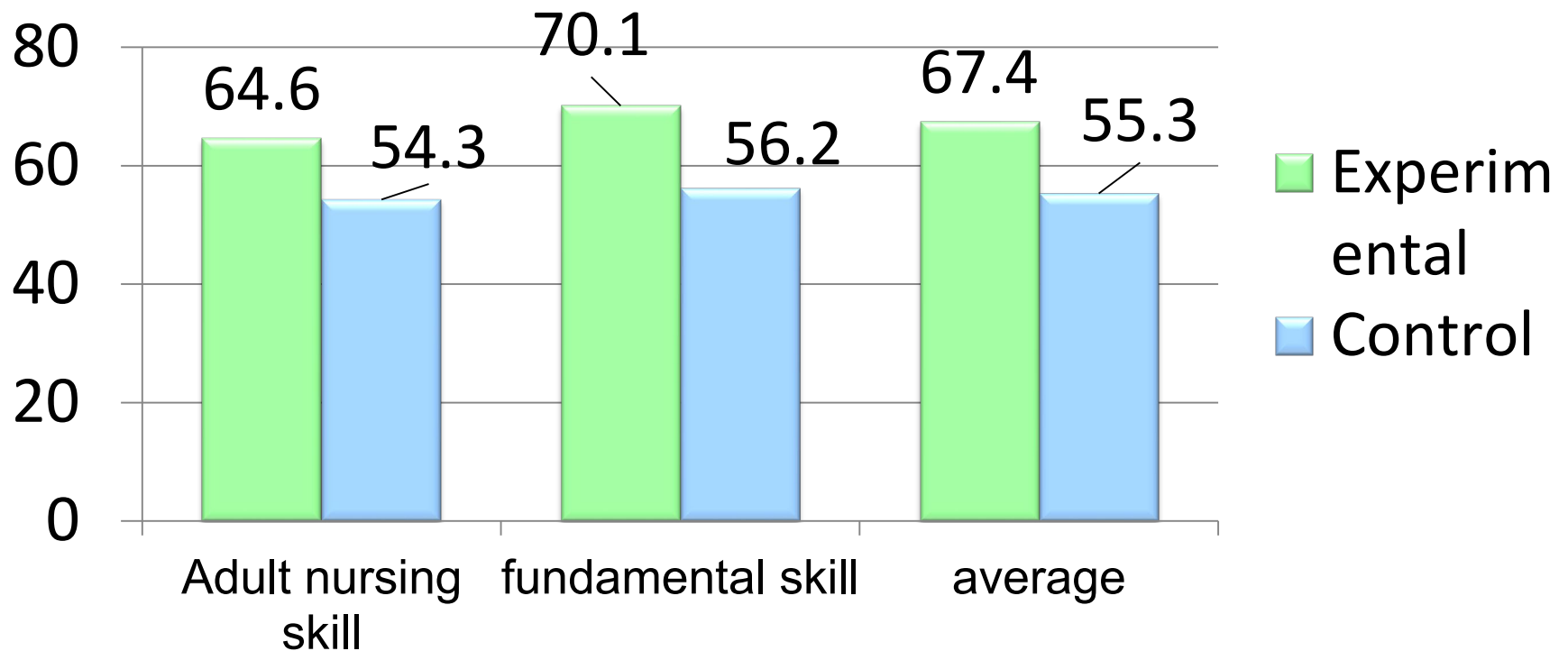


**Control group**  
( $N = 66$ )



- none
- pass one-adult
- pass one-fundamental
- pass two tests

# Mean Score of OSCE Tests



# Scores of two groups in OSCE test

	Experimental		Control		t test	
	Mean	SD	Mean	SD	t	p
<b>Adult nursing skill test</b>	64.6	15.84	54.3	15.72	3.31	.001
<b>Fundamental nursing skill test</b>	70.1	16.32	56.2	19.95	3.77	<.001
<b>Average score in OSCE</b>	134.7	23.88	110.5	26.97	4.75	<.001
<b>Number of passed OSCE tests</b>	1.5	0.59	0.9	0.76	4.42	<.001

# Scores of Clinical practicum

	Experimental		control		t test	
	Mean	SD	Mean	SD	t	p
<b>Medical-surgical nursing practicum I</b>	83.6	3.59	80.5	5.58	3.50	.001
<b>Medical-surgical nursing practicum II</b>	81.8	4.23	79.8	6.21	1.84	.069
<b>obstetric nursing practicum</b>	82.5	4.57	79.4	4.59	2.63	.010
<b>Pediatric nursing practicum</b>	83.8	3.15	82.2	3.86	3.45	.001



# Scores of Clinical practicum

	Experimental		control		t test	
	Mean	SD	Mean	SD	t	p
<b>psychiatric nursing practicum</b>	84.6	2.40	82.9	3.67	3.46	.001
<b>public health nursing practicum</b>	84.1	4.10	81.0	4.76	2.23	<.028
<b>Mean score of nursing clinical practicum</b>	83.4	2.61	81.0	3.30	4.02	<.001

# Results of ANCOVA analysis

模式	依變項	F	p	Eta square
1	OSCE-fundamental nursing skill test	9.78	.002	.085
2	OSCE-Adult nursing skill test	9.22	.003	.081
3	Mean score in OSCE	17.05	<.001	.140
4	Medical- surgical nursing practicum I	4.50	.036	.041
5	Medical- surgical nursing practicum II	2.17	.143	.020

# Results of ANCOVA analysis

模式	依變項	F	p	Eta square
6	obstetric nursing practicum	8.82	.004	.078
7	Pediatric nursing practicum	3.38	.069	.031
8	psychiatric nursing practicum	4.59	.034	.042
9	public health nursing practicum	8.89	.004	.078

# Nursing Competence in two groups

	<b>Experimental</b>		<b>control</b>		<b>t test</b>	
	Mean	SD	Mean	SD	t	p
<b>Nursing Competence-pretest</b>	145.8	18.06	132.3	15.84	4.04	.000
<b>Nursing Competence-posttest</b>	146.2	10.91	141.8	13.68	1.65	.103

# Results of Repeated Measured ANOVA

	SS	df	MS	F	p
<b>Within</b>					
<b>time</b>	1175.75	1	1175.75	4.30	.041
<b>Time *GPA before enrollment</b>	942.22	1	942.22	3.45	.067
<b>Time*group</b>	1845.23	1	1845.23	6.75	.011
<b>error</b>	24039.44	88	273.18		
<b>Between</b>					
<b>GPA before enrollment</b>	9.35	1	9.35	.07	.793
<b>group</b>	1988.16	1	1988.16	14.72	.000
<b>Error</b>	11884.87	88	135.06		

# Learning Satisfaction of Students

	Experimental		control		t test	
	Mean	SD	Mean	SD	t	p
<b>Satisfaction of professional knowledge</b>	3.93	.704	3.41	.636	-2.914	.005
<b>Satisfaction of professional Attitude</b>	3.76	.912	3.52	.700	-1.099	.277
<b>Satisfaction of professional Skills</b>	3.90	.724	3.46	.647	-2.338	.023



# Conclusions

- The simulation-based learning program was effective to improve nursing students' perception of their competence and learning satisfaction.
  - Future research should continue to explore the effects of the program with larger and more diverse samples.
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