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The Effects of Maternity Video and Simulation Based Education on Critical Thinking, Interpersonal Relationship, Self Leadership and Major Satisfaction

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Abstract

Background/Objectives: In this study, the clinical nursing skills of nursing students are strengthened through delivery video training and delivery simulations based on the difficulties in labor training, so that critical thinking, interpersonal ability, self-leadership, and major satisfaction could be analyzed.

Method/Statistical Analysis: The purpose of this study is to investigate the effects of video teaching and simulation training on nursing college students. The subjects of this study were 170 out of 178 participants excluding eight dropouts in the G city nursing department in the J area. Structured questionnaires were used as learning tools including general characteristics, critical thinking, interpersonal relationships, self-leadership and major satisfaction. Data were collected from September 2018 to April 2019 and technical statistics, t-test, and paired t-test were conducted.

Findings: Critical thinking($t = -4.53$, $p = .000$), interpersonal relationship($t = -2.89$, $p = .005$), self-leadership ($t = -3.00$, $p = .004$), and major satisfaction($t = -2.31$, $p = .023$) are all significant, and simulation is more effective than video, and critical thinking, interpersonal relationship, self-initiative, and major satisfaction are positively correlated. The simulation education was significantly lower in the subdomain than the education.

Improvements/Applications: The simulation of training in childbirth showed significant differences in critical thinking, interpersonal relationship, self - leadership, and majors in video education.

Keywords: *Video, simulation, critical thinking, interpersonal relationships, self-leadership, majors satisfaction.*

Introduction

Nursing education is nurturing professional nurses to meet increasing demand for better medical quality. Nursing theory education and practice education are provided to nursing students so that they can combine their skills in order to work to meet changes in medical environments. Among them, clinical training is essential for nursing science in order to have the knowledge, skills, and attitudes necessary for nursing practice. However, appropriate fields of practice cannot be secured or there are difficulties for nursing students to have sufficient opportunities for training due to the recent increases in the entrance quota of nursing departments and the enhancement of patients' rights[1-2]. Since fields of practices where observation and firsthand nursing activities are limited have been increasing due to increases in the number of nursing students participating in training institutions, clinical training is carried out centering on indirect activities. Medical environments require more diverse and active nursing

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practices because patients' diseases are becoming more complicated and the number of critically ill patients is increasing. Although theory education should combine practice education to fill the shortcomings of theory education, at least 70% of practice education in the field is noninvasive nursing such as vital signs and observations and even securing the opportunities for observations is becoming difficult. As for maternal nursing science, although the Korean Accreditation Board of Nursing Education currently requires that maternity nursing science practice should be delivery room practice, it is difficult to obtain firsthand experience in delivery room practice in clinical training unlike other subjects of clinical training because personal privacy is regarded important in the case of delivery room practice. Furthermore, due to the recent increase in male students, opportunities for not only delivery room practice but also other subjects of maternity nursing science practice became scarce. Therefore, measures that can replace practices should be prepared for nursing education that will enable nursing students to efficiently respond in the nursing of subjects.

Simulation education enables students to obtain firsthand experience in virtual reality by preparing simulation practice rooms similar to the environment of hospitals in the school. It enables repeated practices in safe environments so that students' fear of practice due to insufficient training or situations where the patient can be damaged due to the lack of skills can be reduced thereby improving students' confidence as well as helping the improvement of students' knowledge, critical thinking, satisfaction, and clinical nursing practice competency. Since simulation-based training is are run in teams, simulation education is helpful not only for personal skills and theories, but also the development of team competencies as nurses. Simulation education can be said to be capable of reducing differences from clinical training in environments very similar to clinics and improving readership, interpersonal ability, and satisfaction as nursing students.

Recently, studies on simulation education have been conducted steadily, but studies that compared simulation education with other education have been hardly conducted. There was a study that compared videos and simulations focusing on respiratory distress cases[3] and a study that examined the effects of videos regarding childcare takeover and simulation-based training[4], but no simulation education on maternity nursing science practice could be found. Therefore, this study aims to identify the effects of simulation education and provide basic data for the expanded application of simulation education thereby contributing to the improvement of the quality of education.

Method

The study was a group of pretested posttest designs. Video training was conducted in the 2nd semester of 3rd grade before simulation training. Simulation training was conducted for 4 hours in the 1st semester of 4th grade. This class was conducted as a simulation exercise by a team of 6 students or less using the Noell Early Childhood Simulator. In G city of J province, 170 nursing students were recruited except 8 dropouts. We chose students who gave them enough information about the study and agreed to participate in the study. Data is collected from September 2018 to April 2019. Researchers have fully explained that before participating in this study, students with negative emotions, such as impulse control and difficulty with depression, can stop participating. Immediately. In addition, the researchers were careful in case some subjects may need treatment or guidance depending on the results of the survey.

The critical thinking ability was measured using the critical thinking ability measuring tool developed by Yoon (2004) for nursing students[5]. Higher scores mean higher levels of critical thinking. The interpersonal ability was used by the interpersonal change scale, which was revised by Moon[6]and higher scores mean better interpersonal relationships. Self-leadership used Self-leadership questionnaire developed by Manz (1986)[7] as a modified version by Kim(2007)[8] to measure self-leadership level. The higher the score, the higher the self-leadership Key satisfaction scores were measured on a 5-point scale, with 18 items written by Ha (2000).[9]

SPSS WIN 23.0 Version program is used for data analysis. General characteristic of the subject is used for frequency analysis and descriptive statistic, paired t-test and Pearson's correlation was used for analysis.

Result and Discussion

1. **Difference of Communication Ability after Simulation-Based Education Program:** The average score for critical thinking skills was 7.07 ($t = -4.531$, $p = .000$), 5.98 for interpersonal relationships ($t = -2.893$, $p = .005$), and 3.47 for Self-Foldership ($t = -3.000$ $p = .004$), major satisfaction increased 3.34 points ($t = -2.313$ $p = .023$). Simulation-based training programs influenced critical thinking skills more than video. [Table 1].

Table 1. The Difference between video training and simulation-based training program (N = 170)

	Video	Simulation	P-D	t	p
CT	91.54±8.90	98.61±10.65	-7.07±14.22	-4.531	.000***
IA	91.90±14.82	97.88±13.06	-5.98±18.82	-2.893	.005**
SL	55.04±8.19	58.51±7.57	-3.47±10.54	-3.000	.004***
MS	59.49±8.64	62.83±8.86	-3.34±13.15	-2.313	.023**

Unit: cm, ***: p<0.005, **: p<0.05, CT: Critical thinking, IA: Interpersonal ability, SL: Self -leadership, MS: Major satisfaction

2. **Difference between critical thinking after video and simulation program:** There was a significant difference in critical thinking (t = -4.531, p = .000). Prudence (t = -1.75, p = .001), sound skepticism (t = 1.17, p = .031), systematic (t = -3.32, p = .002) and intellectual passion/curiosity (t = -2.87, p = .023) showed significant differences, and intellectual integrity (t = 1.786, p = .078), objectivity (t = -2.89, p = .507), and reliability (t = -0.62, p = .711) were significant. Showed no difference [Table 2].

Table 2. Difference of critical thinking after simulation-based education program (N = 170)

	Video	Simulation	P-D	t	p
Critical thinking	91.54±8.90	98.61±10.65	-7.07±14.22	-4.531	.000***
Intellectual fairness	8.28±1.05	7.98±1.05	.30±1.54	1.786	.078*
prudence	13.07±1.74	14.01±1.88	-.94±2.48	-1.75	.001***
Objectivity	11.80±1.38	11.65±1.52	.14±1.98	-2.89	.507
healthy skepticism	13.75±2.25	14.51±2.22	-.76±3.17	1.17	.031**
Systematicity	6.23±1.40	6.94±1.37	-.71±2.01	-3.32	.002***
Intellectual eagerness/Curiosity	7.31±1.30	7.39±1.21	.48±1.80	-2.87	.023**
Self Confidence	6.03±0.85	6.09±0.67	.06±1.04	-0.62	.711

Unit: cm, ***: p<0.005, **: p<0.05

3. **Differences in Interpersonal Ability After Video and Simulation Education Program:** There was a significant difference in the mean scores of interpersonal competences (t = -2.893, p = .005). Sensitivity (t = -2.48, p = .015), communication (t = -2.57, p = .012), intimacy (t = -2.29, p = .025), openness (t = -2.92, p = .005) significant differences were found in and comprehension (t = -2.92, p = .005), satisfaction (t = -1.97, p = .052), reliability (t = 1.80, p = .076). There was no significant difference in [Table 3].

Table 3. Interpersonal ability After Video and Simulation Training (N = 170)

	Video	Simulation	P-D	t	p
Sensitivity	11.49±2.21	12.19±1.74	-.706±2.56	-.2.48	.015**
Communication	14.71±2.86	15.73±2.31	-1.02±3.63	-2.57	.012**
Trust	10.94±2.34	11.53±2.06	-.59±2.99	-.1.80	.076*
Intimacy	11.16±2.27	11.84±2.03	-.69±2.73	-.2.29	.025**
Openness	14.16±2.79	15.33±2.52	-1.18±3.69	-.2.92	.005**
Under Standing	14.70±2.65	15.75±2.15	-1.05±3.274	-.2.92	.005**
Interpersonal Ability	91.90±14.82	97.88±13.06	-5.98±18.82	-2.893	.005***
Satisfaction	14.75±2.27	15.49±2.51	-.75±3.45	-1.97	.052*
Sensitivity	11.49±2.21	12.19±1.74	-.706±2.56	-.2.48	.015**

Unit: cm, ***: p<0.005, **: p<0.05

4. **Differences in self-leadership after Video and Simulation Program:** The mean score of self-leadership was 55.04±8.19 pre-intermediate to 58.51±7.57 post-intervention behavioral strategy (t = -2.65, p = .010), cognitive strategy (t = -2.83, p = .006) was significantly different [Table 4].

Table 4. Self -leadership After Video and Simulation Training (N = 170)

	Video	Simulation	P-D	t	p
Selfleadership	55.04±8.19	58.51±7.57	-3.47±10.54	-3.000	.004***
Behavioral Strategy	32.92±5.39	34.98±4.78	-2.06±7.09	-2.65	.010**
Cognitive strategy	22.12±3.36	23.53±3.43	-1.41±4.54	-.2.83	.006**

Unit: cm, ***: p<0.005, **: p<0.05

Discussion

Few studies measured the effects of video training and simulation-based training using the same tools. The findings of a study conducted by Park and Lim[4] showed no significant difference in takeover confidence, problem-solving ability, or takeover ability. In a study conducted by Kim et al[3], the effects of video training were shown to be more significant on nursing performance, readiness, nursing assessment, and nursing intervention. Findings are regarding classes centered on performance and skills and the core of educational programs is not skills but critical thinking, interpersonal ability, self-leadership, and major satisfaction, differences according to the contents of classes should be also considered.

Critical thinking was statistically identical to the results of Kim et al.[9] The research conducted by Kim & Yu.[10] who measured the effectiveness of simulation-based teaching method using the same tool, showed the same results as the results of this study because there were no significant differences in subareas. . The tools used were not the same, but objectivity, confidence and intellectual fairness. Kim & Kim[11], in a study on the effectiveness of simulation learning with problem-based learning, showed an increase in the mean score, unlike this study, but the difference was not significant. The study of Lee.[12] impact on critical thinking, communication, and clinical practice skills in nursing students differed only in intellectual fairness and objectivity. The significant difference is considered to be due to improvement through peer review.

In interpersonal competence, the research conducted by Kang et al[13] showed the same results as the above findings, although the tools used were not identical, but there were significant differences in interpersonal competence through simulation training[14] and the results of measuring the effects of e-learning and simulation showed the same significant difference as this study. Important differences shown in the subarea. Sensitivity, communication, intimacy, comprehension, and openness are considered due to the fact that simulation training is more like real practice than video. Due to the fact that video and simulation training are not real clinical practice, a slight difference in satisfaction and reliability is taken into account.

The research conducted by Kim and Song[15] on major satisfaction showed a significant difference in the self-leadership created by simulation education, consistent with the above findings. The significant differences in behavioral strategy and cognitive strategy, which are sub-areas, are considered attributable to the fact that unlike video training, simulation education was carried out in teams so that the students could become a leader to solve problems in situations.

Conclusion

This study was conducted to examine nursing students' critical thinking, interpersonal ability, self-leadership, and major satisfaction after conducting video training and simulation training so that the findings of this study can be used as basic data later in revising the direction of guidance of maternity nursing practice. Although nursing students complete maternity nursing practices together with maternity nursing science, there are problems such as the lack of training institutions, poor training environments, and the phenomenon of avoiding male student training. Therefore, educational programs that can supplement the training should be

operated. Therefore, the students who started the training were educated on the shortcomings of practices through videos in classes, and thereafter, those parts that could not be practiced and those parts that were insufficiently practiced were educated through simulations.

The findings of this study showed significant differences in critical thinking, interpersonal ability, self-leadership, and major satisfaction between video education and simulation education consistently with previous studies. The study findings in some subareas were consistent with those of previous studies but those in other subareas were not. This is considered attributable to the effects of differences in the compositions and contents classes and the characteristics of students and professors who participated in the classes. In particular, interpersonal ability, self-leadership, and major satisfaction were not studied very much as variables after the simulation education programs and were not compared among different educational programs. Therefore, the foregoing variables should be studied later because teaching-learning method that will enable students to learn the knowledge and skills the most efficiently instead of practices should be selected.

Based on the findings of this study, simulation-based educational programs can be said to be appropriate education and learning method that can fill the shortcomings of practices because they provide students with experiences of firsthand playing professional roles and studying and thinking things necessary for the roles in advance instead of practices in which they just observe what others do. In addition, simulation-based educational programs are considered helpful in clinical fields after graduation because they affect interpersonal ability, self-leadership, and major satisfaction. Recently, diverse teaching and learning method have been presented, smart education using diverse electronic devices and applications has been strengthened, and integrated simulation education programs have been operated. Therefore, this researcher wishes to propose studies to develop diverse and appropriate nursing education method, studies of diverse variables of such nursing education method, and studies of education method.

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Conflict of Interest: Nil

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