

Understanding the Influencing Factors and Experiences of Clinical Learning Environment in COVID-19

Hyun-Jung Kim¹, Dahye Park²

¹ Department of Nursing, Daewon University College, South Korea

² Department of Nursing, Semyung University, South Korea

dhpark@semyung.ac.kr

Abstract: This study aims to understand the factors influencing clinical practices and experiences of nursing students in varied clinical learning environments during the COVID-19 pandemic. It uses an exploratory sequential mixed methods design where quantitatively, the subjects' sense of powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment were evaluated, and qualitatively, in-depth interview and analysis of the reflections were conducted. Data analysis was performed by paired t-test and multivariate regression analysis using the SPSS 25.0 program, and qualitative thematic analysis was performed. As a result of the study, in online clinical education, it was found that the lower the sense of helplessness ($p=.018$) and the higher the clinical practice satisfaction ($p=.004$), the higher the learning commitment was, and the model composed of these variables explained 39.2% of the learning flow. In addition, the higher the satisfaction with clinical practice, the higher the learning immersion ($p<.001$), and the explanation power was 54.1%. As a result of qualitative thematic analysis, three central themes and six sub-themes were derived, and it was found that students experienced 'a fearful but useful experience, regret about the limited experience, and pride and high satisfaction in the nursing profession'. In the context of the spread of COVID-19, it is necessary to develop effective practical training methods to improve the quality of nursing education.

Keywords: Nursing students, COVID-19, clinical practice, online education, qualitative study

1. Introduction

As COVID-19 spread worldwide in 2020, social and economic living environments have changed due to regulations such as social distancing to prevent infection (Shin 2020). Due to these changes, the educational paradigm has changed at universities, such as non-face-to-face classes using online and remote classes, or classes that combine face-to-face and non-face-to-face classes to prevent the spread of COVID-19 infection (Yoon et al., 2021). Nursing education aims to produce nurses with competency through the integrated education linking theoretical education and practical education. Nursing students will be able to identify and solve the subject's problems in various clinical settings using the theoretical learning through clinical practice (Farzi et. al., 2018; González-García, 2020; Thomas et. al., 2015). However, due to the COVID-19 pandemic, hospitals implemented social distancing and restricted movement outside, and clinical practice were suspended for student safety. Accordingly, nursing students received clinical practice from the first semester of 2020, when COVID-19 began to spread, replacing clinical practice education with on-campus simulation training or online media such as Virtual Simulation (vSIM) and Nursing Skill (Yoon et al., 2021; Park G. 2019). In 2021, there are more than 50,000 confirmed cases per day due to the spread of mutant viruses and omicrons and to ensure safety, limited clinical practice focusing on observation is being conducted among patients and students to avoid the spread of infection (Lim 2021). However, since clinical practical education has a great influence on establishing the professional intuition of a socialized nurse who plays a professional role, it is necessary to develop and operate a program that can maximize the effect of practical education (Thomas et. al., 2015; Kim et al., 2021).

When nursing students perceive that what they can do on their own in the new educational environment of clinical practice is limited, they feel helpless and stressed, which negatively affects their satisfaction with clinical practice (Lee 2010; Wi and Lee 2022). However, when self-efficacy is high, nursing students achieve their goals by successfully performing the given tasks independently (Park & Chung 2021). Therefore, in a situation where clinical practice is limited, there is an urgent need for an educational method of clinical practice that allows students to be immersed and satisfied. Accordingly, studies were conducted to verify the effectiveness of education at the time when education was conducted in combination with online practice due to COVID-19. However, most of the clinical practice subjects were among the quantitative or qualitative research on classroom practice and online non-face-to-face practice experience, or to confirm the effect of online clinical practice including virtual simulation (Kim et al., 2021; Kim et al., 2021; Lim 2021; Park and Chung 2021; Yoon et al., 2021). As COVID-19 and mutated viruses spread round the world, there are still insufficient mixed studies confirming the experience and the influencing factors on whether clinical practice conducted online and in hospitals is

the way to satisfy the goals of practical education, clinical practice satisfaction, and learning immersion.

Therefore, this study was conducted for nursing students who experienced online clinical practice and hospital clinical practice in the context of COVID-19, which provides the basic data for developing a clinical practice education program and establishing an educational strategy to improve the core competency of nursing students by identifying the influencing factors and the experiences that differ according to the clinical learning environment.

2. Research method

2.1. Study design

This study used an exploratory sequential mixed methods design, which is a research method that converges and merges qualitative data with quantitative data to interpret the overall results. For quantitative research, a single-group before-and-after design study was conducted to verify the differences in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical practice education environment for nursing students who have experienced online clinical practice and hospital clinical practice due

to COVID-19. For qualitative research, after the clinical practice course was completed, in-depth interviews and the contents of the reflection log were analyzed.

2.2. Research subjects and data collection

The research subjects are fourth-year nursing students at two four-year universities in A province operating clinical practice classes during COVID-19. The criteria include those who have experience in online clinical practice class, those who have experience in hospital clinical practice, and those who do not have physical or mental problems in participating in the various education setup. Furthermore, the subjects understood the purpose of this study and gave their written consent to participate.

The target subjects were first informed through the bulletin of information of the Department of Nursing. After obtaining their consent, research among them ran from October 22, 2021 to December 20, 2021. For the number of study subjects, the G*power 3.1.9.2 program was used, and the power ($1-\beta$) was 0.8, the significance level (α) = 0.05, and the median effect size (f) = 0.50. The number of samples required for the Wilcoxon signed-rank test was calculated to 8 people. In consideration of dropouts, a total of 29 subjects were recruited for the study, and the data of 29 subjects who conducted questionnaires and interviews were analyzed.

2.3. Qualitative research methods

The reflection diaries of nursing students who participated in the study were analyzed and in-depth interviews were conducted. The subjects of this study were those who understood the purpose and contents of this study while agreeing to voluntarily

participate, and both confidentiality and anonymity were explained. They were informed that they could withdraw their participation at any time without penalty.

2.4. Research tools

2.4.1. The sense of powerlessness related to clinical practice

In order to measure the powerlessness related to clinical practice, the tool for assessing powerlessness developed by Miller(1983) was modified by Lee(2010) to understand the powerlessness of nursing students who performed clinical practice. A total of 27 items were measured through a five-point scale ranging from “strongly agree” (5 points) to “not at all” (1 point), and the higher the score, the higher the sense of powerlessness in clinical practice. In Lee's (2010) study, the Cronbach's alpha of clinical practice-related powerlessness was .91. In this study, the Cronbach's alpha was .89 in online clinical practice-related powerlessness and .92 in hospital clinical practice-related powerlessness.

2.4.2. Clinical practice-related self-efficacy

As a tool for self-efficacy related to clinical practice, the Nursing Self-Efficacy Scale (NCSE) developed by Harvey & McMurray(1994) for nursing students was used, and Parker(1993)'s self-efficacy measurement tool for nurses was modified and supplemented for use. It consists of a total of 25 items, and includes both invasive and non-invasive areas as the questions focus on clinical skills. The invasive area consists of blood glucose measurement, intravenous injection, and indwelling catheterization, and the non-invasive area consists of nursing assessment and diagnosis, education on self-nursing or disease management, observation of side effects of drugs, and prevention of falls and bedsores. Each item is on Likert scale ranging from 10 points on 'I'm not confident at all' to 100 points on 'I am confident completely', and the higher the score, the higher the self-efficacy related to clinical practice. In this study, the self-efficacy related to online clinical practice was Cronbach's alpha .98 and the self-efficacy related to hospital clinical practice was .94.

2.4.3. Clinical practice satisfaction

For the clinical practice satisfaction, the measurement tool developed by (Cho and Kang 1984) and modified and supplemented by (Lee et al., 2004) was used. It consists of a total of 31 questions, including 9 questions on the contents of the practice, 9 questions on the practice guidance, 7 questions on the practice environment, 3 questions on the practice time, and 3 questions on the practice evaluation. This tool is a five-point Likert scale ranging from 5 points on 'strongly agree' to 1 point on 'not at all', with higher scores indicating higher satisfaction. In the study of Lee et al. (2004), the Cronbach's α was .87, and in this study, it was .88 in online clinical practice satisfaction and .93 in hospital clinical practice satisfaction.

2.4.4. Learning flow

Learning immersion was measured using the 35-item tool developed by Suk and Kang (2007) and modified and supplemented by Lee (2010) to measure the degree of learning flow in the learning situation. For each item, the scores of each question measured on the Likert scale ranging from “not at all” (1 point) to “strongly agree” (5 points) were added up and divided by the number of items to obtain the average value, with higher scores indicating higher learning flow. At the time of development, the Cronbach's α was .89, and in this study, online clinical practice-related learning immersion was .95 and hospital clinical practice-related learning immersion was .95.

2.5. Methods of data analysis

The data were analyzed using SPSS/WIN 25.0 program. Differences in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment of the subjects were analyzed using mean, standard deviation, and paired t-test to compare the scores and differences of each variable. Pearson correlation was used for correlation between variables, while stepwise multiple regressions were used to identify factors affecting learning flow according to clinical practice environment. For qualitative research data analysis, the content analysis was performed on the interview data and reflection log data transcribed. By repeatedly reading the transcribed interview data and reflection journal, meaningful sentences containing key concepts were extracted, and categories were derived by interconnecting and abstracting the extracted sentences.

2.6. Ethical considerations

In order to secure the bioethics and safety of the research process, after obtaining the approval (IRB:S**-2021-09-001) from the Bioethics Review Board (IRB) of the university to which the researcher belongs, the researcher requested permission for the research from the heads of nursing departments of two four-year universities located in A province A.

3. Study Results

3.1. General characteristics of subjects

The general characteristics of the subjects are as shown in Table 1, and 79.3% of the subjects were female and 20.7% were male. The average age was 23.59 years, from 22 to 25 years old.

Table 1. General Characteristics of Participants N=29

Variable	Categories	N (%)
Gender	Male	6 (20.7)
	Female	23 (79.3)

Age	22	
	23	1(3.4)
	24	15(51.7)
	25	8(27.6)
	M:23.59±0.83	5(17.2)

3.2. Differences in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment

Table 2 shows the subjects' feeling of helplessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment. The sense of powerlessness was found to be statistically significantly higher in online practice(3.00±0.56) than in hospital practice(2.18±0.55) ($t=5.862, p<.001$). Self-efficacy was statistically significantly higher in hospital practice(7.87±1.02) than online training(6.09±2.02) ($t=-5.594, p<.001$). Clinical practice satisfaction was statistically significantly higher in hospital practice(4.36±0.42) than online practice (3.61±0.38) ($t=-9.470, p<.001$). Also in learning flow, hospital practice(3.90±0.59) was statistically significantly higher than online practice(3.35±0.55) ($t=-6.066, p<.001$).

Table 2: Differences in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment

classification	online clinical practice	hospital clinical practice	t	p
	M±SD	M±SD		
powerlessness	3.00±0.56	2.18±0.55	5.862	<.001
self-efficacy	6.09±2.02	7.87±1.02	-5.594	<.001
clinical practice satisfaction	3.61±0.38	4.36±0.42	-9.470	<.001
learning flow	3.35±0.55	3.90±0.59	-6.066	<.001

3.3. Correlation in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment

As a result of correlation analysis to understand the relationship in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow in online clinical practice, the powerlessness of online clinical practice showed a significant negative relationship with self-efficacy($r=-.450, p<.05$) and learning flow($r=-.376, p<.05$). Clinical practice satisfaction of online clinical practice showed a statistically significant positive relationship with learning flow($r=.455, p<.05$) (Table 3).

The sense of powerlessness in hospital clinical practice showed a statistically significant negative relationship with clinical practice satisfaction($r=-.439, p<.05$)

and learning flow($r=-.522, p<.01$), respectively. The self-efficacy of hospital clinical practice showed a significant positive relationship with learning flow ($r=.431, p<.05$), and clinical practice satisfaction had the significant positive relationship with learning commitment($r=.455, p<.05$) (Table 3).

Table 3: Correlation in powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to the clinical learning environment

		powerlessness	self-efficacy	clinical practice satisfaction	learning flow
online clinical practice	powerlessness	1			
	self-efficacy	-.450(.015)*	1		
	clinical practice satisfaction	0.86(.656)	.155(.422)	1	
	learning flow	-.373(.046)*	.211(.271)	.455(.013)*	1
hospital clinical practice	powerlessness	1			
	self-efficacy	-.201(.296)	1		
	clinical practice satisfaction	-.439(.018)*	.285(.134)	1	
	learning flow	-.522(.004)**	.431(.020)*	.071(<.001)**	1

* $p<.05$; ** $p<.01$.

3.4. Factors affecting learning flow according to clinical learning environment

Multiple regression analysis was performed to identify factors affecting learning flow according to the clinical learning environment of nursing students(Table 4). As a result, powerlessness and satisfaction with clinical practice were found to be significant variables in online clinical practice, and the lower the sense of powerlessness and the higher the satisfaction with clinical practice, the higher the learning flow. The model composed of these variables showed the explanatory power of 39.2% for learning flow.

Table 4: Factors affecting learning flow according to clinical learning environment

variable	learning flow							
	online clinical practice				hospital clinical practice			
	B	β	t	p	B	β	t	p
age	-2.375	-.102	-.606	.550	-2.478	-.100	-.742	.465
powerlessness	-.601	-.472	-2.542	.018*	-.322	-.232	1.610	.121
self-efficacy	-.024	-.063	-.344	.734	.175	.218	1.612	.120
clinical practice	.843	.524	3.140	.004*	.874	.562	3.673	.001*

satisfaction								
	R ² =.392, F=3.861, P<.015				R ² =.541, F=9.252, P<.001			

3.5. Results of qualitative content analysis

As a result of analyzing the contents of the practical experience according to the clinical learning environment of hospital in the context of COVID-19, three categories were derived, and six subcategories were extracted.

Table 5: Results of qualitative content analysis (N=29)

category	subcategory
scary but beneficial experience	fear of Corona virus
	vibrancy of hospital practice
regret for the limited experience	difficulty in interaction and communication
	powerlessness due to restriction of activity
Pride and high satisfaction in the nursing profession	respect for role immersion
	pride in respected nursing profession

3.5.1. The terrifying but beneficial experience

This category included the subcategories of 'fear of Corona virus' and 'Vibrance of hospital practice'. Some participants expressed some regrets, bewildered by the unexpected situation that occurred because of the corona virus or because it was not controlled. However, all participants agreed that they had a meaningful and beneficial experience.

(1) Fear of Corona virus

Participants commented on their fearful experiences of the coronavirus for different reasons. In particular, it was reported that the study participants experienced a lot of negative emotions in the process of hospital practice, along with chaotic internal and external situations and their own concerns about COVID-19 infection.

“We are blocking outsiders, but the teachers also said they were worried about accepting trainees, so I was careful about my actions. What if I really cause harm?”(Participant 2)

“As the coronavirus infection began, the world suddenly became chaotic, and while practicing in the hospital, I felt that fear grew incomparably greater.”(Participant 3)

“ Practice with anxiety about what to do if confirmed persons come out...”(Participant 7)

“I’m in the middle of practicing, but I’m worried that it will be delayed or stopped.”(Participant 18)

“They say that their house is in the OO area, so they say that there are a lot of confirmed cases there, but it seems that they are noticing...” (Participant 27)

(2) Vibrant feeling as if you experienced a real situation

Most of the participants said that they were absorbed in hospital practice, and expressed their satisfaction by saying that this experience will be of great help to actual performance in the future.

“I think I had a good experience because the practice at the hospital went well.”(Participant 1)

“I think I was able to learn more practically in the hospital practice now than in the class, of course, the risk can be high... I have to touch the patients and manage the pressure sores...” (Participant 23)

3.5.2. Regret for the limited experience

This category included subcategories of ‘difficulty in interaction and communication’ and ‘powerlessness due to activity restriction’. Most of the participants reported that direct contact with patients was limited due to social distancing, and it was regrettable that they lacked experience in various interactions. In addition, some participants expressed their worsened powerlessness as their participation during the practice was limited due to the spread of COVID-19.

(1) Difficulties in interaction and communication

Most of the participants said that they had difficulties in communicating while wearing a mask. It was expressed that they felt regretful about the limited contact and lack of interaction opportunities with patients as well as medical staff during the practice process due to social distancing.

“It was a bit disappointing that we couldn’t communicate well because we were talking while wearing a mask.” (Participant 3)

“Since the face was almost covered with a mask, it was difficult to communicate because the expression could not be conveyed.” (Participant 22)

“I was able to communicate through the facial expressions of the subjects, but I think that wearing a mask blocked this environment a little, which hindered the formation of rapport with the subjects.” (Participant 19)

(2) Powerlessness due to restriction of activity

During the practice, the participants expressed that they felt uncomfortable and frustrated about the limitations of the free daily life they had enjoyed so far.

“Because I couldn’t do my activities properly during and after practice, the frustration was the most difficult.”(Participant 28)

“Due to the corona situation and vague anxiety about the hospital, it was difficult to drink water in the ward or have anxiety when using the bathroom.”(Participant 29)

3.5.3. Pride and high satisfaction with the nursing profession

Participants felt great respect for working as nurses in their field and immersing themselves caring for the patients in the midst of the corona crisis.

(1) Feeling respect for role immersion

Most of the participants sought to be empowered and imitated by those who are dedicated in the medical field, even though they have been withdrawn from the spread of COVID-19.

“It was wonderful to see them working hard to prevent patients from being deprived of nursing care due to COVID-19.” (Participant 6)

“It’s the scary situation due to coronavirus, but the hard-working nurses looked great. They must have their own family... I admire them.” (Participant 12)

“I could feel the greatness of the nurses who worked hard for the subjects in difficult circumstances, and I felt respect for them.” (Participant 20)

(2) Pride in respected nursing profession

Most of the participants took pride in their profession, nursing, because they were recognized as professionals, challenged for a better future than the present, and took pride in them.

“Infection control is important not only for the safety of nurses, but also for the safety of both patients and staff in the hospital. I feel proud that the nurses are the ones who are doing the best job of this important management.” (Participant 9)

“When I saw the many nurses who were currently working in the clinic, who are respected by the news and society, right next to me, I came to respect them even more.” (Participant 1)

4. Discussion

This study was attempted to be used as the basic data to suggest the effective directions of clinical practice education by identifying the experiences as well as the factors that affect nursing students' feelings of powerlessness, self-efficacy, clinical practice satisfaction, and learning flow according to differences in clinical learning environment.

The sense of powerlessness according to the clinical learning environment was higher in online clinical practice (3.00 points) than in hospital clinical practice (2.18 points) ($p < .001$). This result was similar to the study of (Oh and Kim 2018), which showed differences in powerlessness of nursing students according to the clinical learning environment. This result is believed to be because it was difficult for both professors and students to adapt to online practical education due to COVID-19. When nursing students feel powerless in clinical practice, their satisfaction with clinical practice may decrease and may negatively affect their nursing image and professional self-concept (Kim et al., 2021; Lee 2010; Wi and Lee 2022). Therefore, not only in hospital clinical practice, but also in online clinical practice, the educational environment that allows students to change or control the problems they need to solve on their own must be prepared, and the educational method that allows students to participate in classes independently must be developed and applied. Self-efficacy was higher in hospital clinical practice (7.87 points) than in online clinical practice (6.09 points) ($p < .001$). This was similar to the results (Oh and Kim 2018)

that showed differences in students' self-efficacy according to the clinical learning environment. In addition, the results support the study of Park and (Chung 2021) that self-efficacy improved while communicating and solving problems to continuously identify the subject's problems. Since self-efficacy has a positive effect on nursing students to achieve the goals of clinical education, it is necessary to develop clinical practice programs with various contents to improve the quality of education in online or hospital clinical learning environments. The satisfaction of clinical practice was statistically significantly higher in hospital clinical practice (4.36 points) than online education (3.61 points) ($p < .001$). This results are consistent with those of (Kim et al., 2021)'s study showing that clinical practice satisfaction was higher than online. In practical education, not only the practical content but also the support of colleagues including the clinical practice instructor is important (Lee et. al., 2021; Wi and Lee, 2022), and students are also affected by practical time, practical evaluation, and practical environment (Farzi, et al., 2018; Kim et al., 2021; Lee, 2010). Therefore, it is necessary to find various ways to satisfy students by actively participating in practice in the limited clinical learning environment. Learning flow was significantly higher in hospital clinical practice (3.90 points) than online (3.35 points) ($p < .001$). As this study did not confirm online and hospital clinical practice, it is difficult to compare them directly, but students who experienced face-to-face simulation practice showed high learning flow (Lee and Hong, 2021). Therefore, in online clinical practice education, continuous interaction with students should be made so that learning flow can be improved, and the learning environment in which students actively participate should be created so that the professional knowledge learned in theory can be linked with practice.

As a result of correlation analysis, there was a correlation between powerlessness ($p = .046$) and clinical practice satisfaction ($p = .013$) in online clinical practice. And the lower the powerlessness and the higher the clinical practice satisfaction, the higher the learning flow. Also, as a result of analyzing the factors affecting learning flow, powerlessness and clinical practice satisfaction had an effect on learning flow ($p = .015$), and the explanatory power was 39.2%. In hospital clinical practice, feelings of helplessness ($p = .004$), self-efficacy ($p = .020$), and clinical practice satisfaction ($p < .001$) were correlated with learning commitment. So, the lower the powerlessness, the higher the self-efficacy and the clinical practice satisfaction, the higher the learning flow. The factor affecting learning flow was clinical practice satisfaction ($p < .001$) and the explanatory power was 54.1%. Although it is difficult to compare them directly because it is not a study on correlation analysis and confirmation of influencing factors for various clinical learning environments, (Lee 2010) found that the lower the powerlessness in clinical practice, the higher the clinical practice satisfaction. In addition, in a study that confirmed the relationship between powerlessness and satisfaction with the major in clinical practice (Wi and Lee, 2022), it was found that powerlessness was related to satisfaction with the major, and

hospital practice satisfaction was higher than that of online practice (Kim et al., 2021). At this point then the number of confirmed cases of COVID-19 is around 100,000, it is necessary to maximize the advantages of online education so that students can participate independently, and develop an online practical education program that allows continuous interaction just like hospital clinical practice. In addition, the role of the instructor in charge of practice should be expanded so that students can achieve the goal of clinical practice by increasing their satisfaction with the practice and learning flow even in the limited hospital clinical practice. On the other hand, it is necessary to establish an effective clinical learning environment through program development in connection with hospitals.

Three categories and six subcategories were derived as a result of analyzing the contents of the reflection log and in-depth interview on the practice experience according to the difference in the clinical learning environment. The three derived categories were 'a frightening but beneficial experience', 'dissatisfaction with the limited experience', and 'pride and high satisfaction in the nursing profession'.

First, the 'fearful but beneficial experience' had to limit or stop practical education for the safety of students and patients as COVID-19 occurred and spread. In this situation, the students experienced the negative emotion of fear about virus. In addition, the students who had the experience of replacing clinical practice by using online contents such as vSim and Nursing skill due to the suspension of clinical practice at the hospital felt lively in the clinical practice at the hospital and said that they were able to immerse themselves in it. It is said that the class that students are satisfied with is the active interaction between professor and student through continuous communication (Son 2014). Accordingly, it is necessary to provide continuous information about the COVID-19 virus, precautions and educational guidelines, and sufficient interaction with students must occur to resolve the negative experience of fear. Additionally, it is necessary to develop educational programs using various scenarios and IT contents so that lively education can be achieved in online clinical practice.

In the second category, 'dissatisfaction with limited experience', students expressed their regret that direct contact with patients was restricted due to social distancing, and thus lack of interaction through communication, and the safety of students and patients. The restrictions on activities implemented for the safety of students and patients caused the sense of powerlessness. This result was consistent with the one expressing dissatisfaction with the field experience because it was not possible to solve the problem of communication with the actual patient in the study on the experience of classroom practice (Kim et al., 2021). As it is judged that limiting clinical practice in hospitals is not the only solution at the time of changing into the era of With Corona, schools and hospitals should prepare the practice plan that allows interaction while sufficiently communicating. Besides, along with the positive experience of being able to integrate and expand nursing knowledge through

repetitive learning and self-learning in online practice (You et al., 2021; Sook, K. 2021), it is necessary to develop convergence education contents that complement the limitations of observation-oriented hospital clinical practice as well as the advantages of online practical education as a strategy to improve students' communication skills and reduce the feelings of helplessness.

The third category was 'pride and high satisfaction in the nursing profession'. Even though the students shrugged off due to the spread of COVID-19, they felt respect for the role immersion of dedicated nurses in the medical field, and took pride in being a nurse as a professional. Phenomenological study on the first clinical practice experience, a thesis that experienced the positive perception of nursing that it is a science and an art, and that nurse is a profession that has a lot of influence on the patient's condition (Song and Lim, 2019) is similar to the results of this study. In clinical practice, powerlessness and low clinical practice satisfaction have negative effects on forming students' professional self-concept (Wi and Lee, 2022). Therefore, while reducing the sense of powerlessness in various clinical learning environments, self-efficacy and clinical practice satisfaction must be increased to improve students' flow. To that end, measures to improve the fundamental clinical learning environment should be prepared so that awareness of nursing and professional self-concept of nurses can be positively formed.

5. Conclusions and Recommendations

This study was conducted to prepare measures to improve the clinical learning environment and provide the basic data for establishing the strategies of clinical practice education by analyzing the differences, influencing factors, and experiences of powerlessness, self-efficacy, clinical practice satisfaction, and learning flow in online and hospital clinical learning environments. As a result of the study, hospital clinical practice showed lower feelings of powerlessness, self-efficacy, clinical practice satisfaction, and learning flow than online. In online clinical practice, powerlessness and satisfaction with clinical practice effect learning flow, and the explanatory power was 39.25. In hospital clinical practice, the higher the self-efficacy and clinical practice satisfaction, the higher the learning flows. Clinical practice satisfaction affect learning flow, and the explanation power was 54.1%. In the experience content analysis, three categories and six subcategories were derived. This study is meaningful because, in clinical learning environment of hospitals and online classes, it identified the factors affecting feelings of powerlessness, self-efficacy, clinical practice satisfaction, and learning flow, and suggested the improvement plan for clinical practice during COVID-19 through qualitative study. However, since there is the limitation of a mixed study conducted at two universities, development of standardized contents and follow-up research are suggested to verify the effectiveness of clinical practice education for various subjects.

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References

Cho, K. J. & Kang, H. S. (1984). Study on self-concept and satisfaction of clinical practice. *Journal of Korean Academy of Nursing*. 14(2), 63-74.

Farzi, S., Shahriari, M. & Farzi, S. (2018). Exploring the challenges of clinical education in nursing and strategies to improve it: A qualitative study. *Journal of Education and Health Promotion*. 7, 115. DOI: 10.4103/jehp.jehp_169_17

González-García, M., Lana, A., Zurrón-Madera, P., Valcárcel-Álvarez, Y. & Fernández-Feito, A. (2020). Nursing students' experiences of clinical practices in emergency and intensive care units. *International Journal of Environment Research Public Health*. 17(16), 5686. DOI: 10.3390/ijerph17165686

Harvey, V. & McMurray, N. (1994). Self-efficacy: A means of identifying problems in nursing education and career progress. *International Journal of Nursing Studies*. 31(5), 471-485.

Kim, H. S., Kim, E. M. & Lee, D. S. (2021). A Study on the Experience of Nursing Student's Clinical Education in School Practice: Focused on Psychiatric Nursing Practice. *Journal of the Korea Academia-Industrial cooperation Society*. 22(2), 169-178. DOI: 10.22156/CS4SMB.2021.11.10.060

Kim, Y. S., Park, J. A. & Lee, Y. J. (2021). Comparisons among Clinical Competence and Clinical Practice Satisfaction on Online and Clinical Practice of Nursing Students during the COVID-19. *Journal of Korean Nursing Research*. 5(4), 13-22. DOI: 10.34089/jknr.2021.5.4.13

Lee, C. H., Kim, H. H., & Kim N. H. (2021). Nursing Practice and Satisfaction for Nursing Students : A Qualitative Content Analysis. *Journal of Next-generation Convergence Technology Association*. 5(6), 1142-1151. DOI: 10.33097/JNCTA.2021.21.05.06.1142

Lee, J. Y. & Hong, S. H. (2021). Effects of a mastery Learning of nursing Skills and a Nursing Simulation Practice on Clinical Competency, Communication Skills and Learning Flow of Nursing Students. *Journal of Learner-Centered Curriculum and Instruction*. 21(11), 173-185. DOI: 10.22251/jlcci.2021.21.11.173

Lee, K. H. (2010). Mediation Effect of Clinical Practice Satisfaction in the Relationship between Nursing Students' Powerlessness and Nursing Image. *Journal of East-West nursing research*. 16(1), 26-34.

Lee, S. H., Kim, S. Y. & Kim, J. A. (2004). Nursing Students' Image of Nurse and Satisfaction with Clinical Practice. *Journal of Korean Nursing Administration Academic Society*. 10(2), 219-231.

Lim, S. H. (2021). Content analysis on online non-face-to-face adult nursing practice experienced by graduating nursing students in the onctact era. *Journal of the Korea Academia-Industrial cooperation Society*. 22(4), 195-205. DOI: 10.5762/KAIS.2021.22.4.195

Miller, J. E. (1983). *Coping with chronic illness overcoming powerlessness*. Philadelphia, PA: David comp.

Oh, Y. K. & Kim, E. Y. (2018). The Effects of Clinical Learning Environment on Nursing Students' Powerlessness and Self-Efficacy Related to Clinical Practice. *Journal of East-West Nursing Research*. 24(1), 36-43. DOI: 10.14370/jewnr.2018.24.1.36.

Park G. (2019). The Relation of Critical Thinking Disposition, Nursing Professional Values and Satisfaction in Clinical Practice of Nursing Students. *International Journal of Advanced Nursing Education and Research*. Global Vision Press. 4(2), 19-26. doi:10.21742/IJANER.2019.4.2.04

Park, K. O. & Chung, S. K. (2021). The Influence of online psychiatric nursing practicum including virtual simulation on goal commitment, self-efficacy, critical thinking disposition and problem-solving ability. *Journal of Convergence for Information Technology*. 11(10), 60-67. DOI: 10.22156/CS4SMB.2021.11.10.060

Parker, L. E. (1993). When to fix it and when to leave: relationships among perceived control, self-efficacy, dissent, and exit. *Journal of Applied Psychology*. 78(6), 949.

Shin, Y. C. (2020). Toward one health & welfare: health and welfare in the Covid-19 pandemic. *Health and Social Welfare Review*. 40(1), 5-10. DOI: 10.15709/hswr.2020.40.1.5

Son, H. M. (2014). Analysis of positioning in the nursing students' narrative of the experiences of clinical practice. *Journal of Korean Academic Society of Nursing Education*. 20(1), 129-137. DOI: 10.5977/jkasne.2014.20.1.129

Song, H. S. & Lim, S. H. (2019). A phenomenological study on the first clinical practice experience of nursing students. *Asia-pacific Journal of Multimedia Services Convergent with Art, Humanities, and Sociology*, 9(5), 533-543. DOI: 10.35873/ajmahs.2019.9.5.049

Suk, I. B. & Kang, E. C. (2007). Development and validation of the learning flow scale. *Journal of Educational Technology*. 23(1), 121-154.

Thomas, J., Jinks, A. & Jack, B. (2015). Finessing incivility: The professional socialisation experiences of student nurses' first clinical placement, a grounded theory. *Nurse Education Today*. 35(12), e4-9. DOI: 10.1016/j.nedt.2015.08.022

Wi, O. Y. & Lee, J. H. (2022). Mediating Effects of Social Support and Professional Self-Concept in the Relationship between Clinical Practice Powerlessness and Major Satisfaction in Nursing Students. *Journal of Learner-Centered Curriculum and Instruction*. 22(1), 341-353. DOI:10.22251/jlcci.2022.22.1.341.

Yoon, M. -O., Lee, S. -Y., & Suk, S. S. (2020). The Effect of Classes through Google Classroom due to COVID-19 on Outcome-Based Nursing Education. *International Journal of IT-based Public Health Management*. Global Vision Press. 7(2), 31-38. 10.21742/IJIPHM.2020.7.2.05

Yoon, Y. S., Park, B. S., Park, S. J. & Cho, H. N. (2021). Factors Affecting Clinical Performance in Nursing Students: Focusing on Online Clinical Practice students during the COVID-19 Era. *The Journal of Korean Nursing Research*. 5(2), 1-10. DOI:10.34089/jknr.2021.5.2.1

You, S. Y. & Cho, M. Y. (2021). Nursing students' experiences of online adult nursing practicum in COVID-19. *Journal of Learner-Centered Curriculum and Instruction*. 21(10). DOI:10.22251/jlcci.2021.21.10.385