Peer tutoring experiences of neonatal nursing simulations among Korean nursing students: a qualitative study

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Purpose: This study aimed to explore nursing students' experiences of neonatal nursing simulations using peer tutoring. **Methods:** In this qualitative content analysis study, data were collected using a narrative survey and focus group interviews with 27 third-year nursing students and six fourth-year nursing students from April to May 2022. Content analysis of the collected data was conducted. **Results:** Four categories—"stabilizing emotionally through each other", "advancing together", "difficulties in relationships", and "hoping to continue"—and nine sub-categories were extracted. The sub-categories "reduced burden" and "gaining confidence" were grouped into the first category, "stabilizing emotionally through each other". The sub-categories "being motivated to learn," "increased learning ability", and "preparation as a process" were grouped under "advancing together", and "attitudes affecting study environment" and "depending on help" were grouped into the third category of "difficulties in relationships". The fourth category of "hoping to continue" had "wanting to supplement for development" and "wanting to participate in different roles" as sub-categories. **Conclusion:** Based on the results of this study, we expect pediatric nursing practicum education to improve through the active use of neonatal nursing simulation education incorporating peer tutoring.

Key words: Neonatal nursing; Simulation training; Students, nursing; Peer group

INTRODUCTION

As the proportion of high-risk newborns with health issues increases, the importance of professional intensive care in the nursery room and the neonatal intensive care unit (NICU) has been emphasized [1], and proficiency in delivering nursing care is required from nurses. However, opportunities for nursing students to provide nursing care in clinical practicum education have been reduced as patients' rights have been strengthened, and nursing students have been limited to the provision of simple care [2], making it difficult to provide high-quality nursing education. The limitations in practicum opportunities in nursery rooms and NICU due to the continuous decline in birth rate and the following decrease in the number of inpatient newborns have been worsened by the coronavirus disease 2019 (COVID-19) pandemic, as hospitals implemented policies to protect patients

from COVID-19 [3,4]. Thus, there are concerns that new nurses might enter the clinical field without experience in nursery rooms and the NICU. Many nursing educators have recognized the crisis in clinical practicum due to COVID-19 as an opportunity to introduce various educational methods [5]. Moreover, simulation-based education is being actively used as an alternative to the neonatal nursing practicum, which is lacking, in order to enhance students' professional nursing competencies [2]. Neonatal nursing simulation education improved students' clinical competencies regarding jaundice and pneumonia [6], and NICU nurses also most strongly preferred a simulation program for neonatal nursing education [7].

As simulations are recognized for their educational effects in nursing education based on their stability and variety, the role of simulation programs is expanding to replace, rather than supplement, the clinical practicum [8]. Nevertheless, stu-

dents can experience high stress and anxiety in simulation situations [9]. Students have reported emotional difficulties, such as anxiety, fear, and uncertainty beginning in the preparation stages for simulations, as they worry about encountering a situation they cannot control [10]. Negative emotions (e.g., anxiety) interfere with learning, while positive emotions (e.g., interest) motivate learning [11]. Therefore, as the use of simulations is expanding in nursing education in general, educators should make efforts to reduce students' stress and anxiety and increase the educational effect of simulations.

Peer tutoring is a method to advance learning, where tutors with similar experiences support tutees as they adjust to learning effectively [12], and this method has been used in simulation education for nursing students [13]. Tutees in nursing simulation were found to acquire knowledge effectively in a non-threatening and positive learning environment through the support of tutors [12]. Moreover, the practical help and support provided by the tutors in the peer tutoring process acted as protective factors against difficulties faced by tutees [14]. Peer tutoring relieves tutees' difficulties [15] and supports their education through the role model of the tutor [16]. It simultaneously has positive effects on tutors by strengthening their learning capacity and motivating their learning [15]. Therefore, instructors should strongly consider the use of peer tutoring in order to reduce students' stress and anxiety in the simulation environment and enhance learning results. Qualitative studies explored tutors' [17] and tutees' [12] experiences of nursing simulations using peer tutoring, but peer tutoring is a cooperative type of learning in which the tutor and the tutee influence each other, and positive and negative aspects occur within that relationship [15]. Therefore, existing studies that analyzed experiences only from the perspectives of tutors [17] or tutees [12] have limitations in confirming the effects of peer tutoring on improvement in simulation performance from a holistic perspective. It was also difficult to identify studies on neonatal nursing simulations using peer tutoring. Therefore, exploratory qualitative content analysis studies [18] that extract themes by comprehensively understanding nursing students' experiences as tutors and tutees in neonatal nursing simulation using peer tutoring are needed.

This study, therefore, aimed to understand the peer tutoring experiences of nursing students regarding neonatal nursing simulations and improve the level of neonatal nursing practicum education by providing foundational information about neonatal nursing education. The research question was, "what did students experience during peer tutoring in neonatal nursing simulations?".

METHODS

1. Research Design

This qualitative content analysis study was conducted to explore the peer tutoring experiences of nursing students during neonatal nursing simulations. This study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guidelines [19].

2. Participants

The participants were 27 third-year students who participated as tutees and 6 fourth-year students who participated as tutors in the nursing department at one university in Daegu metropolitan city.

1) Participants as tutors
The tutor eligibility criteria were voluntary agreement to participate in the study and having taken Pediatric Nursing Practicum 1 in the first semester of 2021 for fourth-year students. Tutors supported the simulation learning of third-year students (tutees) in Pediatric Nursing Practicum 1 in the first semester of 2022. All 6 participated in the narrative survey and the focus group interviews. The tutors were all fourth-year students from ages 21 to 24 years, and only one of the 6 tutors was male. The tutors had previous practicum experiences in the nursery room and NICU, as well as experience with simulation, but they did not have prior peer tutoring experiences.

2) Participants as tutees
The eligibility criteria were voluntary agreement to participate in the study and having taken Pediatric Nursing Practicum 1 in the first semester of 2022 for third-year students. Twenty-seven third-year students participated in the narrative survey, and 12 of them participated in the focus group interviews. The tutees who participated in the focus group interviews were all third-year students from ages 20 to 24 years, and two of the 12 were male. The tutees did not have practicum experience in the nursery room or NICU, but all tutees had experience with simulations. Excluding one tutee who participated in a peer tutoring program to apply to a specialty in their first year, most tutees did not have prior experience with peer tutoring (Table 1).

Table 1. Characteristics of Nursing Students Who Participated in Focus Group Interviews on Peer Tutoring Experiences of Neonatal Nursing Simulation (*N*=18)

Participant	Grade	Age (year)	Gender	Clinical practice experience		Experience with peer tutoring prior to the program	Experience with simulations prior to the program
				Nursery room	NICU		
Tutor 1	4	21	F	Yes	Yes	No	Yes
Tutor 2	4	24	M	Yes	Yes	No	Yes
Tutor 3	4	22	F	Yes	Yes	No	Yes
Tutor 4	4	22	F	Yes	Yes	No	Yes
Tutor 5	4	22	F	Yes	Yes	No	Yes
Tutor 6	4	22	F	Yes	Yes	No	Yes
Tutee 1	3	22	F	No	No	Yes	Yes
Tutee 2	3	21	F	No	No	No	Yes
Tutee 3	3	20	F	No	No	No	Yes
Tutee 4	3	21	F	No	No	No	Yes
Tutee 5	3	20	F	No	No	No	Yes
Tutee 6	3	20	F	No	No	No	Yes
Tutee 7	3	24	M	No	No	No	Yes
Tutee 8	3	21	F	No	No	No	Yes
Tutee 9	3	21	F	No	No	No	Yes
Tutee 10	3	21	F	No	No	No	Yes
Tutee 11	3	22	M	No	No	No	Yes
Tutee 12	3	21	F	No	No	No	Yes

F, female; M, male; NICU, neonatal intensive care unit.

3. Application of Neonatal Nursing Simulations with Peer Tutoring

The main topic of the neonatal nursing simulations with peer tutoring was caring for neonatal babies immediately after birth, including maintaining neonates' respiration and body temperature Apgar score measurement and interpretation, physical assessment, and enhancement of mother-child attachment. The simulation was operated in six stages. In the first stage (50 minutes) for each module, an orientation on simulation with peer tutoring was conducted. In the second stage (1 hour), a verbal test to check pre-learning was conducted for each team. In the third step (20 minutes), a pre-briefing on the simulation was conducted. In the fourth stage (2 hours), a tutor was in charge of the tutees in teams of three or four, and supported the simulation-related nursing skills training. In the fifth stage (20 minutes), the teams conducted, and the professor in charge of the subject participated as an evaluator and a tutor participated as an observer for debriefing. In the sixth stage (50 minutes), the instructor, the tutor, and the tutees gathered to conduct a debriefing.

The instructor conducted pre-education for all tutors before the start of the simulation. The pre-education for each module was conducted in three stages. In the first stage, the tutors were provided with simulation learning materials from the instructor and studied on their own. In the second step (1 hour), the tutors reviewed the simulation scenario analysis and nursing skills with the instructor and also learned how to teach. In particular, the tutors checked the areas that they had difficulties with during the previous year and re-learned the material. In the third step, the tutors discussed with the instructor the questions they expected from the tutees and the best answers to those questions. While the tutors supported the tutees, the instructor supported both the tutors and the tutees in the same space.

4. Data Collection

Data collection occurred from April to May 2022, during which narrative surveys were conducted with 27 third-year

students and six fourth-year students after neonatal nursing simulations using peer tutoring as a part of the Pediatric Nursing Practicum 1 coursework. The researcher recruited participants they completed the simulation evaluation, considering the vulnerability of the participants as students. When recruiting participants, the researcher explained to students that participation in this study was not related to their grades and that participants could stop participating in the study at any time without any disadvantage. In addition, the researcher explained that participants could also stop participating in the study when they completed the grade verification. The study data were only used for research purposes, and participant information was coded and saved in the computer of the principal researcher locked with a passcode to ensure anonymity. Other people could not access the data. A small gift was provided after data collection.

Focus group interviews were conducted with 12 third-year students and six fourth-year students who agreed to participate. In the narrative survey, participants were asked to write down what they enjoyed about simulations using peer tutoring, what they found difficult, what they found helpful, areas of improvement, and additional thoughts to share. The researcher of this study distributed the narrative survey and did not intervene while the participants filled it out.

The focus group interviews had six participants each based on the suggestion from Krueger and Casey [20] that a focus group size of 5 to 8 people is ideal when the topic is non-commercial. The two groups of third-year students were interviewed once for one to one and a half hours, and the one group of fourth-year students was interviewed twice for one hour each. In total, four focus group interviews were conducted by the researcher of this study. Interviews took place in a seminar room of the university that the researchers were affiliated with, so participants could be comfortable in a quiet environment. Interviewers asked participants whether they had questions and responded to any questions that they asked. A semi-structured interview guide was used for data collection, and open-ended questions were asked. The main question was, "Please tell us about your peer tutoring experiences during neonatal nursing simulations." To clarify the question, probing questions such as "What was helpful for your learning while experiencing peer tutoring during neonatal nursing simulations?" and "Please share if you have comments about the peer tutoring you experienced during neonatal nursing simulations" were asked to explore their experiences in greater depth. All data were audio-recorded and transcribed verbatim. The non-verbal responses of participants during the interviews, such as facial expressions, behaviors, and voice fluctuations were recorded in field notes and incorporated into data analysis.

5. Data Analysis

To analyze the data for this study, the recordings were transcribed by a research assistant after repeatedly listening and writing down the words as spoken by the participants. The researchers checked the transcripts by listening to the recordings again. The collected data were analyzed according to the inductive approach among the content analysis methods proposed by Elo and Kyngas [21]. The detailed content analysis process was as follows. First, in the preparation phase, all the data were understood by repeatedly reading the narrative responses from the surveys and the interview content. Second, in the categorization phase, sentences that reflected the participants' experiences were selected as the analytic unit through open coding and read multiple times to extract meaningful statements. Similar contents were arranged together to form sub-categories, which were abstracted further to create categories. Third, in the reporting phase, the categories were presented. Lastly, to confirm the credibility and confirmability of the analysis results, the study results were shared with one nursing professor with rich qualitative research experience and two participants, who checked whether the analysis results reflected participants' experiences adequately.

6. Credibility of the Study

The researchers have provided simulation coursework for many years and made an effort to explore and describe participants' experiences in-depth by thoroughly reviewing literature about qualitative research during the research process. The researchers completed qualitative research coursework at graduate school and have experience publishing qualitative research conducted with nursing students, adolescent patients, and parents.

To ensure the rigor of the study results, efforts were made to increase credibility, transferability, dependability, and confirmability, which are evaluation criteria suggested by Guba and Lincoln [22]. First, to ensure credibility, the transcript in which a research assistant wrote down the original language used by participants was checked again by researchers to minimize missing data or misunderstandings. Second, for transferability, purposive sampling was used to select participants, and data collection continued until theoretical saturation was reached. Two study participants confirmed whether the results of the data analysis corresponded with and represented their experience. Third, to ensure dependability, the study was conducted strictly according to the qualitative content analysis method proposed by Elo and Kyngas [21], and efforts were made to ensure consistency in the study by having one nursing professor with ample qualitative research experience

evaluate the overall research process and study results. Fourth, to increase confirmability, the process of writing down researchers' biases or assumptions in notes continued from the beginning to the end of the study so that researchers' biases would be excluded. Efforts were made to reflect the participants' experiences as they were.

RESULTS

Four categories and nine sub-categories were extracted through the data analysis (Table 2).

1. Stabilizing Emotionally Through Each Other

1) Reduced burden

Tutors and tutees reduced their burdens through each other in the simulation. This was the first time that tutors taught juniors, and tutors reported being worried at first whether they could be helpful. However, tutors recognized the need for their role as they were able to provide more practical help than professors could to tutees based on their own experiences, which relieved their perceived burden regarding their role. Tutees reported that the simulations themselves were burdensome and stressful. However, their anxiety and pres-

Table 2. Peer Tutoring Experiences of Neonatal Nursing Simulation: Categories, Sub-categories, and Narrative Content Analysis

Categories	Sub-categories	Narrative content analysis
Stabilizing emotionally through each other	· Reduced burden	· Tutors: adapted to the role based on experience, helped tutees and reduced anxiety as a tutor, adapted as a tutor and reduced the burden · Tutees: reduced worry about the simulation, reduced anxiety about the simulation
	· Gaining confidence	· Tutors: accurately familiar with the simulation, gained confidence in the simulation · Tutees: looked forward to the simulation, self-confidence thanks to the tutor's help, self-confidence thanks to the tutor's praise
Advancing together	· Being motivated to learn	· Tutors: reflected on one's past attitude due to active tutees, promised to have an active learning attitude like tutees · Tutees: tutors were more approachable than instructors, active learning in a horizontal atmosphere
	· Increased learning ability	· Tutors: learned from the perspective of the instructor as a tutor, realized the importance of communication in simulation, realized the importance of prioritizing in simulations · Tutees: got specific help from tutors, made aware what tutors didn't realize, accurately identified problems and helped tutors
	· Preparation as a process	· Tutors: experienced a new role as tutor, indirectly pre-experienced the preceptor role · Tutees: received information about clinical practice from tutors, obtained information about school life from tutors
Difficulties in relationships	· Attitudes affecting study environment	· Tutors: no way to help if the tutees were not active, decreased motivation due to passive tutees · Tutees: tutors' rude attitude interfered with learning, uncomfortable with the careless attitudes of the tutors
	· Depending on help	· Tutors: annoyed by tutees who did not work hard on their own, embarrassed by tutees asking for help with the basics · Tutees: asked tutors for help without effort, thought that the tutor would help with anything
Hoping to continue	· Wanting to supplement for development	· Tutors: wanted to strengthen education on teaching methods, wanted to be recognized through grades, wanted to be evaluated objectively as tutors · Tutees: wanted a standardized level of tutors, wanted support from tutors considering the level of tutees, wanted to perform peer tutoring in various simulations
	· Wanting to participate in different roles	· Tutors: wanted to participate in the simulation as tutees, wanted help from a tutor who is a nurse · Tutees: wanted to participate as tutors

sure about simulations were reduced as tutors emotionally supported them throughout the practice time, telling them not to feel stressed, and helped them with gaps in knowledge and surgical skills.

> I was worried at first because I had no experience teaching underclassmen. But once I tried, because I already knew which parts were difficult or upsetting, I ended up helping them very naturally. As the tutees expressed their gratitude, I started feeling a bit more relaxed as well. (Tutor 4)
>
> I was able to relax and be the least anxious among all the simulations so far because upperclassmen calmed me down, telling me not to worry too much, and helped me by my side throughout the practicum. (Tutee 10)

2) Gaining confidence

Tutors gained confidence in the simulation by repeating the simulation, and tutees gained confidence in the simulation by receiving praise from the tutors. Most tutors self-evaluated that they were not able to complete the simulations perfectly the previous year and could not remember the content exactly as a year had passed since. However, they demonstrated confidence since they prepared as tutors and perfectly mastered the simulations by helping tutees. Tutees also gained confidence as they corrected their errors immediately with tutors' help and received compliments for their strengths during the simulation practice period. Tutees were satisfied with the program, as they were able to go through the simulations calmly based on the confidence that they gained.

> I think I completely mastered the content only now after helping the underclassmen. If anyone asks, I can now go up and explain confidently. (Tutor 3)
>
> During practice, tutors pointed out the small errors, gave advice, and taught me what I didn't know or was curious about. They also encouraged me, saying I was doing well, so I could conduct the tasks with confidence. (Tutee 6)

2. Advancing Together

1) Being motivated to learn

Tutors were motivated to learn due to the active learning attitude of tutees, and tutees were motivated to learn because the tutors could approach them more comfortably than the professor. As tutors observed tutees who actively asked questions and tried their best in various ways, tutors compared themselves, who were passive in their learning, to the tutees. Through this comparison, tutors planned to be more proactive in their learning. Tutees reported feeling reluctant to ask questions to professors as they worried that their questions would be about something that was already discussed or too rudimentary and professors would evaluate them negatively. However, with tutors, since everyone was a student, tutees could participate more actively in a more horizontal and freer atmosphere.

> I was motivated to study harder seeing the tutees' proactive attitudes. (Tutor 5)
>
> We can ask upperclassmen questions more freely, so I was able to practice more proactively. (Tutee 4)

2) Increased learning ability

Tutors confirmed what was important in the simulation through their work with the tutees, and tutees said that they were able to improve their learning ability through practical advice from tutors. As tutors observed tutees go through the process of simulation, they reported that although knowledge and skills are important, they realized that it is more important to have an opportunity to understand the priorities in the overall situation and to communicate effectively among team members in team-based simulations. Tutors were satisfied, saying that they felt they would be able to do better in future simulations based on what they learned through this experience. Tutees reported that they could focus more on learning, as tutors gave them practical and detailed advice from their experiences. Tutees also described being able to study effectively, as tutors examined the situation from the students' perspectives, identified what tutees had difficulties with exactly, and empathized with them.

> I thought I should step back from the situation and think about what is important for the patient and what the priorities are. (Tutor 4)
>
> The teams I thought did very well were good at communication. Watching that, I realized what to do in the future. (Tutor 6)
>
> A tutor told me about their mistake last year, and it was something I would have made a mistake on if I did not hear about it, so it helped a lot. (Tutee 7)
>
> Since the tutors are one year ahead of us, they thought and taught us from our perspective, so we could learn more easily and in more detail. (Tutee 8)

3) Preparation as a process

Tutors were able to improve their educational competency as nurses by supporting tutees, and tutees said that they were able to prepare for clinical practice through tutors. During the preparation stages, tutors were able to learn effective ways to

teach their colleagues, such as how to ask questions to expand the thinking of tutees and how to provide opportunities for tutees to think for themselves and wait. Tutors felt proud as they learned what attitudes they should have in the future when they are taught by their preceptors after becoming a nurse and how to teach others when they become preceptors themselves. Tutees reported that tutors with extensive clinical practicum experience explained which aspects they should be cautious about if the simulation situation occurs in actual clinical practice. Moreover, tutees were able to prepare themselves after getting advice about the attitudes they should have in clinical practicum and potential difficulties. Tutees were satisfied that their learning was expanded from the simulations to the clinical setting by the assistance they received from the tutors.

> After I go into clinical practice and learn as a preceptee or teach as a preceptor, I think I will be able to do well if I remember what I learned now. (Tutor 5)
> I really liked how they explained in detail what I need to be aware of if this was an actual clinical situation. I go out to my first clinical practicum next week, and I really appreciated the tutors telling me tips, warning me about what might be difficult, and encouraging me. (Tutee 9)

3. Difficulties in Relationships

1) Attitudes affecting study environment

Tutors said that the academic atmosphere deteriorated due to tutees' passive learning attitudes, and tutees said that the academic atmosphere deteriorated due to tutors' rude attitudes. Tutors described actively helping tutees because they wanted tutees to take more away from the sessions, but when they had tutees who did not focus or ask questions, they felt discouraged about their efforts to help. Tutees reported feeling uncomfortable when tutors behaved casually with tutees they knew outside of class and chatted about personal matters, which interfered with learning.

> I wanted to teach tutees who were showing effort, but when I saw tutees who were distracted and did not practice, it felt like my will was being diminished. (Tutor 6)
> The tutor and a tutee in our team were in the same student group, and when the tutee asked the tutor a question, the tutor snapped and said 'how can you not know that?', so it was awkward. (Tutee 5)

2) Depending on help

Tutors said that experienced difficulties because of tutees who did not solve problems on their own, and tutees also rec-

ognized that it was unproductive to try to rely on tutors rather than solve problems on their own. Tutors reported that some tutees made them feel perplexed because they did not try to solve problems on their own and immediately sought help from tutors and demanded solutions. Tutees said they requested answers from tutors rather than thinking on their own or looking for the answer by discussing with teammates.

> I did not know what to do with tutees who just wanted to get answers and did not want to think for themselves. (Tutor 2)
> I felt we started to rely on the tutors rather than thinking for ourselves. Because I kept asking before thinking, the tutor told me to think first and then speak. (Tutee 8)

4. Hoping to Continue

1) Wanting to supplement for development

Both tutors and tutees hoped that the tutoring program for the simulation would continue and mentioned areas to be supplemented. Tutors suggested the need to unify tutors' delivery methods by identifying the most effective method of conveying information. In addition, tutors said that if they were objectively evaluated like tutees, the program would be qualitatively improved. Tutees reported that the amount of help they received differed based on the personal capacity of tutors. Tutees suggested making the selection criteria for tutors clearer so tutors could provide all tutees with the same level of help.

> We all have the same information, but since the way of delivering that information differs for each tutor, tutees seem to be confused about how each tutor explains the information differently. There seems to be a need to know how each of us delivers the information. (Tutor 3)
> I think we'll work harder if we think we're getting graded. (Tutor 5)
> Everyone taught well, but there were some tutors who excelled. I hope all tutors in the future will be like that tutor. (Tutee 10)

2) Wanting to participate in different roles

Seeing that tutees were satisfied with the program, tutors also thought they would like the help of tutors for their simulations. Tutors were in their final year, and most hoped to find employment as clinical nurses. They thought if a nurse from the clinical field could tutor them, they would be able to receive help in various aspects such as nursing knowledge, job search, and their career. Tutees said when they go onto their fourth year, they wanted to become tutors to help tutees.

Tutees felt they could be proud of themselves by becoming tutors who help tutees by studying hard.

> I thought it would be nice if nurses come as tutors during simulation. (Tutor 1)
>
> I also want to participate as a tutor when I am in my fourth year. I will feel proud about myself if I can study hard and help underclassmen next year. (Tutee 9)

DISCUSSION

This qualitative content analysis study explored nursing students' experiences of neonatal nursing simulations using peer tutoring and identified the strengths and weaknesses of simulations using peer tutoring.

The first category identified in this study, "stabilizing emotionally," confirmed how tutors and tutees supplemented each other's weak points in the simulation and established a stable learning environment. This study found that the tutors felt burdened about their role before the start of the simulation, but as the simulation progressed, they helped tutees and formed confidence through positive feedback. Tutors who have been taught as students feel anxious due to the sudden change into their role as teachers and doubt about whether they have sufficient qualifications to teach [23]. Irvine et al. [16] suggested that supporting tutors develop skills in their role as teachers such as learning theory and teaching methods would increase tutors' confidence. Therefore, instructors should provide systematic programs that enhance tutors' competencies so that tutors can adapt to their role quickly and effectively and create a stable learning environment with tutees. Tutees recognized simulation as a stressful task, but as tutors supported them not only with knowledge and nursing skills but emotionally, their pressure was relieved, and they became confident through the positive reinforcement from tutors during the process. Despite the positive learning effect of simulations, students experience high levels of stress and anxiety during simulations, negatively affecting their self-efficacy and learning results [24]. Using peer tutoring during simulations is effective in increasing learning efficacy by reducing tutees' anxiety [25]. In the current educational environment, where the use of simulations is increasing as an alternative to the unpredictable clinical practicum [26], the use of peer tutoring should be actively considered to provide reliable and effective simulations for neonatal nursing to students.

In the second category identified in this study, "advancing together," tutors were motivated to learn more by tutees who were proactive, and tutees were more engaged, freely asking tutors questions in a horizontal structure. In peer tutoring, tutors and tutees share similar learning experiences, which con-tribute to knowledge acquisition, and support each other to actively participate in the learning process [12]. Peer tutoring is a form of collaborative learning between tutors and tutees and a meaningful learning activity that advances various cognitive abilities such as problem-solving, high-level understanding, conflict, and discussions [15]. Although tutors do not have the same level of authority as professors, tutees can freely ask them questions, and tutors' delivery of knowledge is at an appropriate level for tutees to understand and remember the content [12]. Tutees also reported that advice from tutors who had various experiences in the clinical practicum was very helpful as they prepared to start their first clinical practicum. Tutors gave advice not just about studying, but also about overall school life so that tutees could prepare accordingly. Through peer tutoring, which is similar to the preceptor system of nurses, tutors could prepare for their future and develop their capacities as nurses [14]. Carey et al. [13] identified that using peer tutoring in the pediatric nursing clinical practicum became an opportunity for students to work together to develop practical skills as mutual learning facilitators, and students received positive support from each other. Therefore, multi-faceted efforts by instructors are required so that students' academic competencies can be strengthened through peer tutoring not only in pediatric simulations, but also during the overall pediatric nursing practicum.

In the third category identified in this study, "difficulties in relationships," difficulties from passive and dependent tutees were reported, while tutees discussed rude attitudes of tutors, their own dependence on tutors, and difficulties due to tutors' lack of capacity. Tutors experience difficulties due to tutees who participate in tutoring without the desire to learn or tutees who attend without any preparation [15]. When tutees participate in peer tutoring simulation without any preparatory processes, their dependence on tutors can increase, which can lead to tutors' decreased or depleted will to perform their role. It is necessary to help tutees prepare through appropriate pre-simulation tasks to prevent one-way knowledge transfer from tutors to tutees and to ensure effective learning [27]. Since peer tutoring programs are based on mutual relationships between tutors and tutees, the formation of relationships between tutors and tutees can influence the effectiveness of simulations.

According to a study by Kim and Song [28], tutors' attitudes had a larger impact than their knowledge and skills on tutees' satisfaction with the program and learning outcomes. Similarly, tutees in this study experienced conflicts due to the rude attitudes of tutors, which had a negative effect on their learning outcomes. Difficulties in dealing with relationship conflicts as nursing students can negatively impact successful adjustment as nurses. Pediatric nurses experienced relationship conflicts

more frequently than nurses in the general ward, and the resulting stress had a negative effect on their intention to leave [29]. Therefore, during neonatal nursing simulations, instructors should make an effort to not only pre-screen tutors' attitudes and educate them but also develop expanded scenarios so that tutees effectively respond to rudeness, successfully establish interpersonal relationships, and achieve positive learning outcomes. It is expected that through this, nursing students will gain the capacity for relationship formation and problem-solving necessary to adjust as nurses.

From the fourth category identified in this study, "hoping to continue," most participants were satisfied with simulations using peer tutoring and hoped to participate in the future. In previous studies [30], nursing students experienced simulations using peer tutoring positively and acknowledged the learning effect. However, tutors hoped that more effective simulation-based peer tutoring would be operated in the future, and suggested supplementation of tutors' teaching methods and objective evaluations of tutors. Tutees also mentioned the need for clear criteria to select tutors for simulations with peer tutoring, as well as the need to talk about problems that the tutor is not prepared for in the simulation scenario or cases where they cannot immediately answer the tutor's questions [12]. Therefore, there is a need for instructors to go beyond simply providing tutors' education as preparation and to evaluate tutors on whether they completely learned the educational content. Tutees positively evaluated tutors' activities and wished to return the help they got to their underclassmen by becoming tutors themselves [14]. Tutors also evaluated their role positively and expressed envy toward the tutees who were receiving their help. They also wanted nurses to be their tutors. During peer tutoring, tutees develop by modeling tutors [12]. Therefore, having nurses working in the nursery room and NICU as tutors for neonatal nursing simulation using peer tutoring will provide practical support for the enhancement of neonatal nursing capacity of fourth-year students.

The limitations of this study are as follows. First, in order to exclude the researcher's biases, the researcher's biases and assumptions were described in a diary from the beginning to the end of the study, but the researcher's subjectivity may have nonetheless been involved during the conduct of simulations and interviews. Second, only a small proportion of male students participated in the study, resulting in difficulties comparing experiences by gender. Future studies that include students at nursing schools in diverse regions and more male students are necessary.

CONCLUSION

This study employed qualitative content analysis to analyze tutors' and tutees' experiences of neonatal nursing simulation using peer tutoring and to identify its effects and areas of improvement. The experiences of simulation using peer tutoring confirmed in this study were composed of four categories and 10 sub-categories. Through the categories of "stabilizing emotionally" and "advancing together", we found that using peer tutoring not only strengthened learning capacities, but also reduced anxiety and pressure, helping to provide simulation experiences that were emotionally comfortable. Through the category "difficulties in relationships", we confirmed the need for instructors to provide preparatory support for tutors that include not just content knowledge, but also teaching methods including knowledge delivery methods and attitudes, as well as the need for multi-dimensional efforts to improve students' ability to handle relationship conflicts during the pediatric nursing practicum. Lastly, through the category of "hoping to continue", we found that tutees evaluated tutors positively and hoped for their own opportunities to be tutors. Tutors who were in their last year wished that they could have nursery room and NICU nurses as their own tutors. We hope that neonatal nursing simulations using peer tutoring will become more active throughout the pediatric nursing practicum based on the results of this study. We suggest future studies that apply and interpret simulations with various scenarios using peer tutoring for the pediatric nursing practicum.

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Conceptualization: Hyun Young Koo; Data collection: all authors; Formal analysis: Hyeran An; Writing-original draft, Writing-review and editing: all authors; Final approval of published version: all authors.

Conflict of interest

Hyun Young Koo has been an editor of *Child Health Nursing Research* since 2016. She was not involved in the review process of this editorial. No existing or potential conflict of interest relevant to this article was reported.

Data availability

Please contact the corresponding author for data availability.

Acknowledgements

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