

## 〈Report〉

# Impacts on clinical training on maternal and child support during a disaster in on-campus training in maternity nursing training

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### Abstract

**Background:** Due to the recent spread of COVID-19, changes were made to the content of practical training in maternal nursing practice at this university. In addition, it was necessary to shift part of the on-site training to on-campus training.

**Objective:** This study discusses the relationship between on-campus training and clinical training in role-playing maternal and child support in hospital wards and communities during disasters.

**Practice:** On-campus training was designed to incorporate simulation education and support for mothers and children in hospital wards and in the community during disasters. The participants learned how to act as nursing students when an earthquake of intensity 6 or lower occurred while they were practicing on the ward and how to provide disaster support to mothers and children in the community through role plays. Afterward, 10/15 students chose disaster-related themes during health education, which was the subject of substitute training.

**Discussion:** The simulation of disaster support for mothers and children was a meaningful study for students living in the community. Furthermore, although intermittent, continuity was present between the on-campus practicums (training) and clinical training.

**Keywords:** Nursing Practice, On-campus Practice, Maternal Nursing, Disaster Nursing, Simulation Learning

## I. Introduction

The recent spread of coronavirus disease 2019 (COVID-19) has significantly impacted clinical training in nursing. Maternity nursing training in our university also involved being forced to shorten the training time, and there were also changes in the training content, such as restrictions on direct care, with some of these being substituted for on-campus training.

There is a clear usefulness of simulation education, especially disaster response simulation, in medi-

cine and nursing (Fujioka, Nomura, 2000; Ozaki, 2010; Inoue, Yamamoto, Fujita et al., 2019; Kuroda, 2019). It is difficult to learn how to respond to disasters in clinical training, and it is currently limited to learning about disaster prevention, such as observing management for disaster prevention and patient education. Therefore, it can be said that simulations that assume conditions in the event of an actual disaster in on-campus practicum and training would be meaningful.

However, although the usefulness of disaster response simulation itself has been clarified, as mentioned above, there are few reports on simulations

of disaster support for mothers and children (Arai, 2017; Sahara, Bando, Moriwaki, 2020), and there are also no reports on the impacts of disaster response simulations on subsequent clinical training. Therefore, in the present study, we investigated the actual situation of maternal and child support in hospital wards and communities during disasters, which was conducted as on-campus training, and the impact of on-campus training on health education, which was an issue in subsequent clinical training.

This report aims to discuss the relationship between clinical training and on-campus training in role-playing maternal and child support in hospital wards and communities during disasters.

Individual students will not be identified, and student training records will not be used. Consent was obtained for the photographs of the students to be published in this report. This report has not been reviewed by a research ethics committee because it does not involve human subjects.

## II. Practicums

### 1. Maternity nursing area composition

The maternity nursing in our department offers courses including an introduction to maternal health nursing theory as well as global society and women's health in the 2<sup>nd</sup> semester of the 2<sup>nd</sup> year; maternity nursing assistance theory I in the 1<sup>st</sup> semester of the 3<sup>rd</sup> year; and maternity nursing assistance theory II and maternity nursing training in the 2<sup>nd</sup> semester (Table 1). The prerequisites for the training are that students are to have completed the introduction to

maternal health nursing theory, global society, women's health, and maternity nursing assistance theory I modules and are expected to complete maternity nursing assistance theory II. Disaster Nursing is a fourth-year course and has not been taken at the time of the Maternal Nursing Practicum.

#### 1) Training schedule and content

The maternity nursing area training is two credits (90 hours), with a total of 10 days of clinical training: 5-8 days of hospital training and 2-5 days of community training. Hospital training involves students taking charge of a mother-child pair and developing the nursing process. Community training involves students learning about local maternal and child support and health at childcare groups operated by midwives and postnatal care centers and childcare groups run by midwives' associations.

#### 2) Number of trainees

The hospital training was planned at three facilities, with six to nine trainees per facility. Midwifery centers and childcare groups involved six facilities, with two to three people per facility.

#### 3) Impact of COVID-19

As shown in the change example (Fig. 1), of the eight days of hospital training, 3 days were substituted for on-campus training, and 3 days were substituted for community training. Of the eight days, two days were set as waiting days for training in anticipation that training would resume in March. Despite some schedule changes, the community training was conducted as planned.

**Table 1 Maternity nursing composition**

	First semester	Second semester
Second year		Introduction to maternal health nursing theory (1 credit) Global society and women's health (1 credit)
Third year	"Maternity nursing assistance theory I (1 credit)"	Maternity nursing assistance theory II (1 credit) Maternity nursing training (2 credits)
Fourth year	Integrated nursing training (maternal: 2 credits)	

Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10
1/17 Mon	1/18 Tue	1/19 Wed	1/20 Thu	1/21 Fri	1/24 Mon	1/25 Tue	1/26 Wed	1/27 Thu	1/28 Fri
hospital	hospital	hospital	hospital	hospital	hospital	hospital	hospital	Midwifely Center	Midwifely Center

↓

Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10
1/17 Mon	1/18 Tue	1/19 Wed	1/20 Thu	1/21 Fri	1/24 Mon	1/25 Tue	1/26 Wed	<b>Clinical training standby day</b>	
<b>On campus</b>	<b>On campus</b>	<b>On campus</b>	Midwifely Center	Midwifely Center	Midwifely Center	Midwifely Center	Midwifely Center		

Figure 1 Changes in Practice Schedule due to COVID-19

## 2. On-campus practicums

Table 2 shows the on-campus practicum. The contents were nursing skills about maternal and child support in hospital wards and communities during disasters.

It was thought that students would be confused if the goals of maternal and child support during disasters (Fig. 2) were significantly different from the training goals that were created in line with the goals of maternity nursing training and that it would also interfere with the evaluation of the training, so it was decided that the original training goals would be followed.

Prior to the training, considering the possibility that some students may have experienced disasters such as earthquakes, it was explained to students that they could abstain from the training if they felt uncomfortable during the lectures and role-play.

Maternal and child support during disasters involved the following: (1) a role-play that assumed that an earthquake with a seismic intensity of 6 or lower occurred when the trainee was next to the puerperal woman and child in the mother-child room during hospital ward training, and where the roles were a “nursing student” and “puerperal woman” conducting the behaviors in that circumstance; and (2) a role play where the roles are a “lactating woman” and “husband,” where the support is for

mothers and children who have evacuated to evacuation shelters after the above event.

Orientation was given before the role-play in order to set the situation. In this role-play, students were expected to think about damage control for mothers and babies if an earthquake with a seismic intensity of 6 or lower occurs during training. Group work was done after the role-play for reflection.

Table 3 shows the setting of the situation and the main items used. Fig. 3 shows the role settings and situation.

### 1) Role-play (1)

#### (1) Orientation

An explanation was given of the setting of the situation and each role. It is unknown when an earthquake will occur, so the mothers and the nursing students were instructed not to plan response methods in advance and to make decisions on the spot.

#### (2) Learning content for each role

##### ① Puerperal woman

On the first postpartum day, the puerperal women imagined how they would feel if an earthquake with a seismic intensity of 6 or lower occurred while they were holding their newborn baby, who was born the day before, by actually experiencing the swaying bed.

##### ② Nursing student

Nursing students did not experience swaying

**Table 2 Content of maternal and child support during disaster**

Time	Item	Content
9 : 00	Health management sheet / action plan confirmation	
	Introduction	Lecture on disaster
	Group work ①	What could happen in hospitals and wards during a disaster
11 : 00	Role-play ① If an earthquake with a seismic intensity of 6 or lower occurs during training	Actions to take when an earthquake with a seismic intensity of 6 or lower occurs while visiting the mother-child room
	Group work ②	Discuss realizations and thoughts from each person's perspective (nursing student, mother, observer) after role-play
12 : 20	Lunch break	
13 : 20	Individual work Thinking about disaster prevention	Investigating your own local government's hazard maps, evacuation shelters, and disaster prevention measures
	Group work ③ Creating an evacuation bag	Make a list of items needed for an evacuation bag
14 : 50	Group work ④ Experience of living in the evacuation shelter	Set up evacuation shelter management (cardboard beds, evacuation tents) and experience it
	Role-play ② Breastfeeding methods in the evacuation shelter	Think about breastfeeding methods in the evacuation shelter (cardboard beds)
	Group work ⑤ Maternal and child support in the evacuation shelter	Support that is needed for mothers and children in disasters ① <u>Disaster prevention</u> ② <u>During evacuation</u> ③ <u>After evacuation</u>
16 : 30	End	

Training goals (excerpt)	On-campus training goals
<ul style="list-style-type: none"> <li>• Be able to develop appropriate nursing care for the maintenance and promotion of the health of the pregnant/puerperal woman and newborn</li> <li>• Have an understanding of the promotion of the formation of attachment between mother and child and assistance toward building family functions</li> <li>• Understand mother-child community health activities of pregnant/puerperal women and newborns, as well as the roles and functions of nurses in NICU/GCU and maternity outpatient facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to think about support that considers the characteristics of pregnant/puerperal women in the event of a disaster</li> <li>• Be able to think about support that considers the formation of attachment between mothers and children with regards to support in evacuation shelters</li> </ul>

**Figure 2 On-campus training goals**

**Table 3 Role-play (1) (If an earthquake with a seismic intensity of 6 or lower occurs during training)**

Setting of situation	<p>It is currently 2 : 00 pm.</p> <p>You are currently training in the maternity ward.</p> <p>While visiting the mother in the mother-child room, an earthquake with a seismic intensity of 6 or lower occurs.</p> <p>There is a baby bottle sterilizer, plastic bottle, and chopsticks on the overbed table, and there is no stopper on the overbed table.</p>
Main items used	Bed, cot, newborn baby model, Rescue Mom (emergency baby sling)

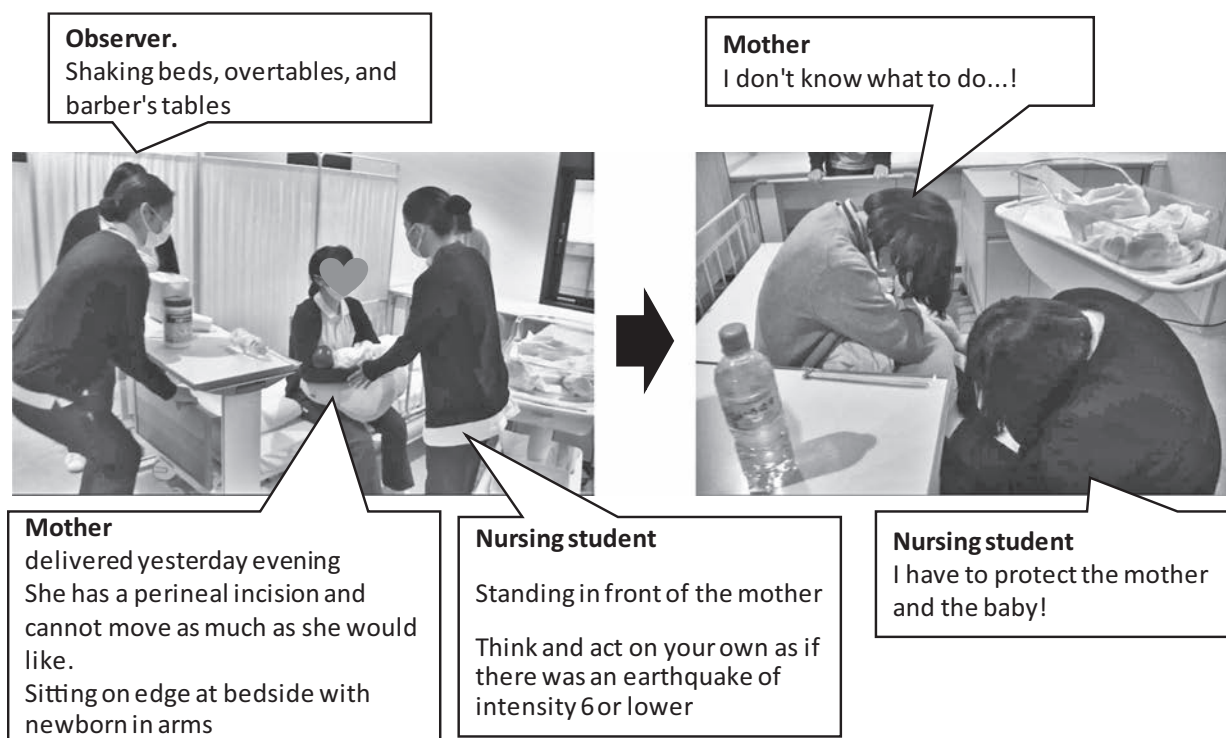


Figure 3 Role Setting and Situations for role-play (1)

Table 4 Role-play (2) (Breastfeeding method in the evacuation shelter)

Setting of situation	You are a first-time mother who gave birth last month. "You have not yet conducted your 1-month healthcheckup." Earlier, there was an earthquake with a seismic intensity of 6 or lower. After the earthquake subsided, you evacuated to an evacuation shelter with your baby and husband. <u>A personal booth is set up, and you have settled down for the time being.</u>
Scene A	The baby is being raised only with breast milk. The baby begins to cry, so you want to breastfeed.
Scene B	The baby is being raised with mixed feeding. You breastfed the baby earlier, but the baby is crying. You have a liquid formula but no baby bottle.
Main items used	Cardboard bed, simple tent, set of evacuation goods for mother and child, emergency food set for 2 weeks

like the students role-playing the mother role, so they behaved as usual, which was sometimes indicated by teachers. Most students immediately ran to the mothers and acted to protect them and their babies.

③ Role of other students

The observers objectively observed the mother and the nursing student's roles, reproduced the earthquake by swaying the bed, and considered more appropriate actions.

④ Group work (after role-play)

Group work was conducted on what the thoughts were from the perspectives of the puerperal woman, nursing student, and observer, and they discussed their feelings and actions in the event of an earthquake with a seismic intensity of 6 or lower.

2) Role-play (2)

Maternal and child support was considered where it was assumed that the subjects evacuated to an evacuation shelter and where they experienced a

breastfeeding mother. Table 4 shows the setting of the situation and the main items used.

Before the role-play, some of the evacuation goods for households with newborns were shown (Fig. 4), and group work was conducted on A how to breastfeed while protecting privacy in a situation where an unspecified number of people are around and B methods for providing formula in a situation where there are no baby bottles.

(1) Scene A

The students used bath towels to secure privacy and thought of a method that would allow them to see the child who was in the bath towel (Fig. 5). Another group created blindfolds with cardboard that was used for partitions, and the husband held another bath towel and used a blindfold.

(2) Scene B

Group work was conducted in advance on how to conduct breastfeeding in a situation without a baby bottle, and opinions such as soaking gauze with milk and having the baby suck it, putting milk in a paper cup, and pouring it into the baby's mouth were shared, after which the cup-based feeding was decided upon by the students (Fig. 6).

3) Role of teachers

During the role-play, the teachers only gave pointers when students missed their roles. After the role-play ended, the mother and nursing student roles were asked to confirm their feelings and thoughts during role-play, and the nursing students were asked to verbalize their actions and confirm their intentions.

### III. After on-campus practicums

#### 1. Assembly of substitute training

Substitute training at one facility (hospital) became possible in March, and the training group was reorganized, including existing training groups and students who were not at the planned training facility. As of January, some students could not conduct



Figure 4 Goods needed by mother and child during evacuation



Figure 5 Role play (2)




Figure 6 Cup Feeding

substitute training at the hospital in March, so for those students, two days of substitute training were arranged in the community from the end of February to March (Fig. 7). There were 15 students in the

day1	day2	day3	day4	day5	day6	day7	day8	day9	day10
1/17 Mon	1/18 Tue	1/19 Wed	1/20 Thu	1/21 Fri	1/24 Non	1/25 Tue	1/26 Wed	1/27 Thu	1/28 Fri
Hospital	Hospital	Hospital	Hospital	Hospital	Hospital	Hospital	Hospital	Midwifery Center	Midwifery Center

( Dates are tentative )



Example: Student A									
day1	day2	day3	day4	day5	day6	day7	day8	day9	day10
1/17 Mon	1/18 Tue	1/19 Wed	1/20 Thu	1/21 Fri	1/24 Non	1/25 Tue	1/26 Wed	1/27 Thu	1/28 Fri
on campus	on campus	on campus	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center

Example: Student B									
day1	day2	day3	day4	day5	day6	day7	day8	day9	day10
1/17 Mon	1/18 Tue	1/19 Wed	1/20 Thu	1/21 Fri	1/24 Non	1/25 Tue	1/26 Wed	1/27 Thu	1/28 Fri
on campus	on campus	on campus	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center	Midwifery Center	Hospital	Hospital

Figure 7 Final Practice Schedule

community training.

## 2. Substitute training assignments

### 1) Selection of health education themes

For the two days of substitute training in the community, the implementation of health education was set as the training assignment based on the experiences of on-campus and community training. The health education themes were presented as follows: (1) postpartum menstruation, (2) self-examination methods for breast cancer, (3) methods of contraception (family planning), and (4) disaster education.

Of the 15 students, 10 chose disaster education, and 5 chose postpartum menstruation. The reasons for the selection of these themes were the following three points.

- In classes in the second semester of the second year, International Board-Certified Lactation Consultant midwives gave a lecture on breastfeeding support during a disaster, and consideration was given to accumulating learning from classes to training ((1), (2), and (4))
- Responses even in short periods are possible ((1), (2), (3), and (4))
- There were earthquakes in the Kansai region

near the on-campus training and substitute training sites as well as volcanic eruptions overseas, and this was thought necessary due to social conditions ((4))

### 2) Disaster education plan contents

The disaster education content involved aspects related to disaster prevention goods (four people), means of communication in the event of a disaster (one person), how to spend time in an evacuation shelter (two people: conducted in groups), and general disaster prevention (three people: conducted in groups). The education plan was created before the start of the substitute training, and students received guidance from the teacher on-site on the first training day. The teacher also sent an e-mail to the midwife, who was the manager of the child-rearing group, to confirm the instruction plan and give advice, which was then feedback to the students.

### 3) Implementation of health education

This was conducted in 5-15 minutes for each student or group, with participants ranging from two to five groups. There were various methods of implementing health education, as shown in Fig. 8, such as using a projector, only verbal instruction, or printing photographs and showing them.



**Figure 8 Health Education**

## **IV. Discussion**

This clinical training was performed on-campus due to the impact of COVID-19 on clinical training. However, as a result, we could re-confirm the usefulness of disaster simulation. Furthermore, although intermittent, we could see the continuity and accumulation of learning in the clinical substitute training. These are discussed below.

### **1. Students' realizations and learning**

In role-play (1), students experienced that when a bed sways in a situation while the mother is holding a newborn, the mother will panic "I don't know what to do!" because they are entirely focused on protecting the baby and that immediate evacuation while holding a baby is not possible. Meanwhile, the nursing student prioritized helping the mother and child and could not consider her own safety "I knew I had to protect the mother and the baby". However, the students realized, in the subsequent group work, that if the student became injured, it became impossible to fulfill their role.

In role-play (2), students were surprised by the number of evacuation goods, and they realized the difficulty of evacuation. At the evacuation shelters, they experienced difficulty feeding a newborn while protecting their privacy "If I only use a bath towel, it will be visible from the side. But we have limited

supplies...". Furthermore, they experienced feeding using paper cups and learned that feeding is possible without a bottle.

Many students also saw hazard maps and disaster prevention maps in the communities they live in for the first time, and they once again became aware of the safety of their homes and the danger of disasters "Oh no. Our house will be flooded up to the second floor". Furthermore, telling their families that there was a class on disasters provided an opportunity to review their own disaster prevention protocols.

### **2. The usefulness of disaster simulation education**

In clinical training, there are few opportunities to learn how to respond to disasters. In some cases, although there are disaster drills at facilities, they are not specific to obstetric wards (Nakaniami et al., 2020). In particular, it seems that there are almost no opportunities to learn disaster support for mothers, children, and communities after finding a job. However, even if a nurse works at a facility when they return home, they are still a member of the community, and they may be in a position of a mother or child, and mothers and children live there. Therefore, maternal and child support in the community is an issue that everybody should consider.

Here, we reported on the content of training role-play, particularly its simulated education content. Role-playing is useful in nursing education because students themselves can participate in and experience the relationship between patients and nurses, in which the reality of nursing is condensed, and what is happening in those situations (Fujioka, Nomura, 2000). In this on-campus training, we reproduced the earthquake by shaking the bed, which "usually should not be done." Students think that "beds will not move if there are stoppers." However, an earthquake with a seismic intensity of 6 or lower will shake the beds even with stoppers. Being swayed against your own will or the person in front of you being swayed is a real experience. By experiencing said shaking, students



learned about the mothers' feelings, leading them to think more realistically about their actions as nursing students.

However, because it is a real experience, there is a concern that it may evoke prior experiences. Therefore, explanations were given to students that they could abstain if they felt uncomfortable, and their emotions were considered. Inoue et al. (2019) also stated that it is necessary to be considerate of students' emotions when conducting disaster nursing simulation education, and it is thought that this is a point that should be considered in the future as well.

### 3. Continuity of practicums and clinical training

This on-campus training was set up suddenly due to the impact of COVID-19, so its impacts on clinical training were unexpected. However, as a result, the content learned in the on-campus training was utilized and connected to the health education in the substitute training. In other words, although intermittent, there was continuity between the on-campus practicums (training) and clinical training.

The order of learning was also thought to have been affected as a factor. First, in the on-campus training, students learned the feeling of when an earthquake suddenly occurred, recognized a large number of evacuation protocols for mothers and children, experienced the actual circumstances of evacuation shelters, and realized the difficulty of evacuating with a newborn baby. Through these experiences, students learned that panic ensues because the disaster occurs suddenly, many evacuation goods are needed when there are children involved, there is no privacy in evacuation shelters, and information on disaster prevention needs to be provided during pregnancy. Afterward, it is thought that many students chose disaster-related content during their substitute training after interacting with mothers and children who live in the community through clinical training, linking their experiences and on-campus training with reality, and expanding their

worldview on this aspect.

## V. Conclusion

Due to the impact of COVID-19, some parts of the training schedule were changed, but on-campus training in disaster support increased learning in substitute training and yielded a meaningful outcome. However, forcefully incorporating on-campus training when clinical training should be conducted is questionable as a learning effect. Therefore, practical subjects should be developed before training based on continuity with clinical training. In particular, disaster support is cross-sectionally related to each field, so it is necessary to investigate the content unique to maternity nursing while collaborating with other fields.

Meanwhile, some students became aware of the dangers associated with the community in which they live for the first time due to this on-campus training. It is thought that sharing disaster prevention, disaster countermeasures, and support in the community from students with their families will raise their awareness of disaster prevention and help the community in disaster prevention.

## Conflicts of interest

No conflicts of interest exist in this report.

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