

Sustaining Power of Nurses in a Damaged Hospital During the Great East Japan Earthquake

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Abstract

Purpose: This study aimed to describe the experiences of nurses who were employed in a psychiatric hospital in Fukushima prefecture during the Great East Japan Earthquake and to explore what sustained the nurses while they worked in the damaged hospital.

Design and Methods: The research design was a qualitative descriptive study. The setting for the study was one of the Fukushima psychiatric hospitals where functions were disrupted by the earthquake and tsunami. Data were collected through a dialogic interview and Katarai (a form of group interview). Nine psychiatric nurses from the hospital participated. The interview and Katarai were transcribed and the narratives were analyzed using a phenomenological approach.

Findings: Themes identified from the transcripts were: (a) the nurses' internalized perception of their duties, (b) responsibility toward their patients, (c) conflicts among nurses and dilemmas nurses faced during this period, and (d) what sustained the nurses to continue working.

Conclusions: Through the earthquake experience, the nurses in this study reconsidered their own ways of living and ways of nursing that they had not thought about before the disaster. The findings also revealed that the state of hospital management and nursing care under normal conditions are reflected during the crisis situation in a disaster.

Clinical Relevance: Clearly, whether it is natural disaster or conflict caused by man, healthcare infrastructures are challenged when unexpected disruptions occur. The findings of this study are applicable not only because they provide guidance about infrastructure development for disaster preparedness, but also because they provide practical methods to support nurses who are placed in strongly stressful situations and have to protect patients.

In Japan, a magnitude 9.0 earthquake with a seismic intensity of up to 7.0 struck the sea around Tohoku at 2:46 p.m. on March 11, 2011. The earthquake came to be known as the Great East Japan Earthquake. Iwate prefecture, Miyagi prefecture, and Fukushima prefecture along the Tohoku coastal region were severely damaged by the earthquake and tsunami, with 15,894 deceased persons and 2,558 missing persons, as well as 121,806 completely destroyed homes (Reconstruction Agency, 2018). Immediately after the Great East Japan Earthquake, an accident occurred at the Fukushima Daiichi Nuclear Power Plant on the coastal region of

Fukushima prefecture, and an evacuation order was given for the area within 30 km of the nuclear power plant because of radiation. The Fukushima prefecture coastal region suffered a threefold disaster composed of the earthquake, the tsunami, and the nuclear power plant accident. This was disaster at a level that had never been experienced before, and the mental health-care systems were devastated.

In this study, one of the Fukushima psychiatric hospitals is described. Despite avoiding the evacuation order caused by the nuclear power plant accident, the hospital's functions were disrupted by the earthquake

and the ensuing tsunami. The aims of this study were to describe the experiences of nurses who were employed in a psychiatric hospital in the Fukushima prefecture during the Great East Japan Earthquake and to explore what sustained the nurses while they worked in the damaged hospital.

Great efforts have been made to preserve records of the earthquake by methods such as interviews of victims in the Great East Japan Earthquake disaster area (Yoshihara, Nihei, & Matsumoto, 2015; Yoshihara, Nitagai, & Matsumoto, 2017). Researchers have compiled reports relating to mental health and psychiatric care at the time of the disaster as related by mental healthcare teams (Yabe et al., 2011). However, most of the publications were field activity reports and reports and surveys of actual conditions of the disaster area. There are few reports that describe the experiences of nurses in the psychiatric hospitals, which were badly affected by the Great East Japan Earthquake. While aftershocks continued to occur, and while there was unease about the risk for further nuclear power plant explosions and invisible radiation damage, the nurses, who were also victims, positively engaged in the reconstruction of psychiatric hospitals even while dealing with the conflicts between the needs of work and the competing needs of family. This study uncovers the voices of nurses who continue to be nurses and provide documents to consider the support system for mental health care of victimized nurses.

Methods

A qualitative descriptive design was used to describe the context and uncover the lived experiences of nurses who continued to care for patients in a psychiatric hospital (hereafter referred to as “the hospital”) in the Fukushima area during the Great East Japan Earthquake.

Introduction to the Setting

The hospital in Iwaki City, Fukushima prefecture, comprises five buildings. The main building is in the center, and there is a single-story ward on the west side, a welfare building on the north side, a sanatorium medical facility on the east side, and a long-term healthcare facility on the south side of the main building. The distance from the main building to the coast is approximately 100 m, and the long-term healthcare facility is closest to the sea. In Iwaki City where the hospital is located, the seismic intensity at the time of the earthquake was just under 6 on the Richter

Scale, and then the first wave of the tsunami struck approximately 30 min after the earthquake. The buildings were able to withstand the earthquake, but the first story of the long-term healthcare facility was destroyed by the tsunami, and flooding reached the second floor. As for the other buildings, the flooding reached halfway up the first story, but the cars and rubble swept up by the tsunami broke through the first stories, causing destruction inside. Although power was maintained, most of the infrastructure was destroyed, and the hospitals became dysfunctional.

Stance of Researchers

The people involved in disaster area support in Fukushima prefecture can be divided into three categories with different stances (Figure 1). The first stance is that of the health and welfare professionals and local government staff, who were residents in the region that were forced to evacuate due to the earthquake, tsunami, and nuclear power plant accident in the Fukushima prefecture. The second stance is from the perspective of the health and welfare professionals and local government staff, who were residents and experienced blackouts and water shortage in Fukushima prefecture due to the earthquake but who did not personally evacuate. The third stance is that of health and welfare professionals, local government staff, researchers, and volunteers who entered Fukushima to support the victims. Those in the first and second stances are relevant in terms of being victims. In the case of Fukushima prefecture, due to the severe damage caused by rumors about radioactive contamination, those in the second stance are also relevant as victims of radiation disaster. The three researchers in this study were all residents in

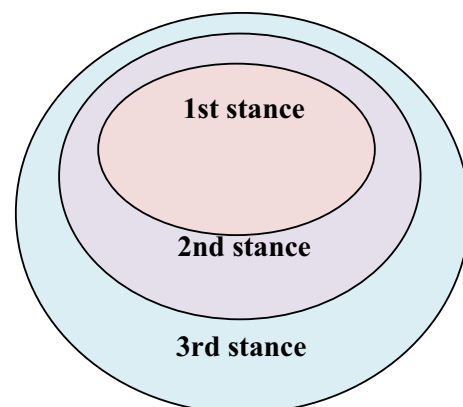


Figure 1. Stance of researchers in disaster situations

Fukushima city at the time of the earthquake and were active members of the mental healthcare team at their university. As residents from the second stance, the researchers had great empathy for the health and welfare professionals who were in the first stance, which enabled this study to be conducted from an emic perspective.

When reviewing prior research and studies, many of the studies were conducted by professionals from the third stance, but in this study, the method was one of reconstructing the ever-changing situation while those involved clarified their own actions and decisions. Those involved who were in the first stance were exhausted by the disaster support activities and were stressed for a long time afterward, but in terms of their status, the period of 5 years since the disaster was deemed to be an appropriate period to look back at the disaster.

Data Collection

Data in this study included transcribed narratives, collected through a dialogic interview and Katarai (a form of group interview). The method of Katarai was proposed by Toguchi (1981) as a method of expressing nursing experiences and sharing nursing experiences.

Before Katarai, the two researchers conducted a dialogic interview with a nurse manager at the hospital on March 11, 2016. The interview lasted approximately 2 hr. The day was just 5 years after the disaster. Nurse A, who had been the nurse manager since the time of the earthquake, retired at the end of March 2016. In the dialogic interview, the nurse manager at the time of the earthquake talked about the process at the hospital from the disaster through to reconstruction.

Katarai was conducted at the hospital in October 2016, and it was composed of 11 nurses, including the 3 researchers, 7 nurses with 20 years or more of nursing experience, and Nurse B, who had been appointed as a nurse manager in April 2016. At the time of the earthquake, Nurse B was working at a nursing school operated under the same system as the hospital and was one of the first volunteers to arrive at the damaged hospital, even though her home had been washed away in the tsunami. In Katarai, each of the nurses talked about the impressions they still had, and the situation at the time of the earthquake was described through Katarai. Katarai lasted approximately 3½ hr.

The dialogic interview and Katarai were recorded on digital voice recorders with the participants' permission and transcribed in the nurses' native language, Japanese.

Data Analysis

The written documents, that is, transcriptions in Japanese of the dialogic interview and Katarai, were analyzed and organized along the time axis, and the themes were extracted from the written documents. Analysis and interpretation of the written documents relied on a phenomenological approach, focused on understanding situations and discovering the personal and cultural meanings of the events as they unfolded (Stuhlmiller, 1994).

Ethical Considerations

The research was approved by the Ethics Committee of the University of Kochi. Letters of informed consent with signatures from the hospital and the participants were obtained. The Japanese manuscripts of this study were sent to the nurse manager in the hospital in order to verify the protection of privacy and confirmation of the contents.

Findings

Themes were identified from the written documents about what happened when the earthquake occurred. These were (a) the nurses' perception of their duties, (b) responsibility toward their patients, (c) dilemmas nurses faced and conflicts among nurses, and (d) what sustained the nurses to continue working. These themes traced the timeline of the 3-month period from the occurrence of the earthquake to the re-opening of the hospital.

The Nurses' Internalized Perceptions of Their Duties

What the Nurses Did When the Earthquake Occurred. What were the nurses doing when the earthquake occurred? The nurses who were off-duty at the time described what happened at the time, as follows:

I was startled for a moment, like you would be at a sudden change in the weather. Anyway, I tried to get outside while wondering what was going on. As soon as I got into the car the tremors hit. The tiles were falling off the roofs with tremendous force. When the tremors died down I went back into my house, and all the stuff in there had fallen like an avalanche. I had a day off the next day, March 12. I tried to call the hospital but I couldn't get through. Thinking that I'd better get some food for

my three children, I went to the convenience store nearby, but there was nothing on the shelves. I kept on calling the hospital, and that night I finally got through to one of the nursing staff. My house is 38 km from the nuclear power plant, so we had to stay waiting inside because of the radioactive particles. On the morning of March 13, the water was back on at our house, and so I filled three 2-L plastic bottles with water, and I headed off for the hospital. (Nurse C)

I was on night shift, and I went to the shops after work. I was driving when the earthquake happened. First, I felt the shaking—it was like the car was going to get blown away by a strong wind. Well, I thought it was a whirlwind or something. On the way home, stone walls and fences had collapsed, and there was water coming out of the manholes. That's when I realized there'd been an earthquake. I tried to phone my workplace but I couldn't get through. That night I got an email from a workmate, saying, "The hospital's in a terrible state as well, so I'm going to go over and bring them some rice balls and stuff." Well, you might say I was taking a more optimistic view of things. I wasn't thinking at all about the damage from the tsunami. I just got up in the morning and got ready for work. But the water was cut, even though it had been okay the night before. I drove to the hospital and when I reached the parking lot, there were cars and rubble smashed into the ground floor of the building. It was a sight to beggar the imagination—like I was watching a movie or something. The scene was so completely different from the night before; all I could do was stand there and cry. (Nurse D)

While nurses living in places away from the coast were aware that a strong earthquake had happened, power outages and cut phone lines meant that they were unable to get any information about the situation at their workplace, and they did not imagine that the hospital would be damaged by the tsunami. The nurses were going to work the same as normal, in nondisaster time, trying to make sure to not be late for work. A hydrogen explosion occurred at the nuclear power plant on the afternoon of March 12, and there were subsequent explosions on March 13 and 14. The nuclear disaster involved the release of a large quantity of radioactive particles.

Responsibility Toward Their Patients

The situation at the hospital when the earthquake occurred

Of the seven nurses who participated in Katarai, one nurse experienced the earthquake at the hospital with the patients. Nurse E, who was in the wards on the second floor, described the scene at the time as follows:

The earthquake struck at tea-break time, so most of the patients were in the hall. Just as I was thinking to myself that this might be an earthquake of seismic intensity 3 or so, these incredible tremors started, and they kept going for a while. We gathered the patients in the hall to keep them safe, and we frantically got them to crouch under the tables. This was the first earthquake of this size the patients had ever experienced, and some of them were in serious shock. Even if nurses told them, "Get down!", some of them would try to get up and walk around. So, we held them down as hard as we could while we did a roll-call to check that the patients were safe. (Nurse E)

The patients' reactions when the earthquake occurred were described as follows:

This earthquake was a first for the patients as well as for us. With tremors that size, you'd think the earthquake would've shocked people into pandemonium, but it wasn't like that. They were shocked speechless, you see. When it died down, it was like, "My God, what was that?" There were aftershocks right through that night. When an aftershock came, there were some patients who screamed, "It's an earthquake!" (Nurse E)

Nurse F was on the way to a home visit with a patient when the earthquake occurred and got back to the hospital just before the tsunami struck. A tsunami warning had been issued, predicting that a tsunami of approximately 3 m would strike. So, Nurse F assisted in moving patients from the wards on the first floor to the second floor wards:

It looked like we were in for a tsunami. But if the patients were to see it, they might get very upset, and so we kept them away from the windows. We closed all of the curtains in the rooms. So, the patients didn't see the

tsunami when it came. Instead, we staff stayed close to the windows. I saw the tsunami come. Just like you saw it on the television, this water—so black you'd wonder where this water came from—it just came towards us without a sound almost, quietly. Suddenly it was just there, and then the cars in the parking lot went whoosh, and they were floating. Their hazard lights started blinking on and off, and their horns were going “beep beep.” This was as they were being washed away into the wind-break woods by the sea, with incredible force. It all looked rather quiet, but the destructive force of the tsunami was unbelievable. I thought I was seeing the most awful sight, but at the same time I remember telling the patients, “Stay calm, everyone,” with a look on my face as though nothing at all had happened. (Nurse F)

When the earthquake occurred, some people at the hospital temporarily took refuge outside, but when information about the tsunami warning came through, both patients and staff proceeded up to the second floor of the main building. This was about 3 o'clock on a Friday afternoon, and so many staff were present. Working all together, they were able to move the patients on the first floor to the second floor. One member of the staff had temporarily taken refuge immediately after the earthquake, but had forgotten a safe and returned to the office to retrieve it. This staff member was fatally caught up in the tsunami. Apart from this loss, all of the other staff and the patients were fortunately able to evacuate without any fatalities or injuries.

A disaster response headquarters was set up in a fourth-floor ward at the main building, and an emergency meeting was held. The initial tsunami surge had severely damaged the long-term care health facilities, and further warnings of major tsunamis were still being issued. Thus, it was decided to transfer all of the facilities' patients to the second floor of the main building. The patients were transferred in a set order, with those able to walk given priority, and those unable to do so following after. Nurse F, who was involved in the transfer, describes the situation at the time as follows:

In this situation, it was quite clear who could walk and who couldn't. When the staff went over, they all stared in our direction, looking like they expected to be rescued. When we told them, “We're going to

start with the people who can walk first,” I will never forget the expressions on the faces of the ones who couldn't walk. They looked so pitiful. We went round telling them, “It's all right. We'll come back for you, for sure.” If you reached out to touch one of them, they'd cluster around you, clinging onto your hand. (Nurse F)

Thus, at the hospital, the inpatients in the psychiatric ward were assembled in the wards on the third and fourth floors, and the patients from the tsunami-damaged long-term care health facilities were accommodated in the second-floor wards. The second floor was frequented by day care clients and outpatients, and it was crowded with patients and family members who had no way of getting home. About 400 people were to stay overnight in the hospital main building.

One nurse who watched the tsunami receding on the day of the earthquake realized, “All the cars have been washed away and become write-offs. The engines are flooded and won't start. I can't get home today.” The nurses staying at the hospital took care of the patients who had been moved in from the long-term care health facilities. Dinner that evening was of canned food from storage. Bed-mats for the patients and family members were spread out on the floor, and they were asked to rest there. With the patients wrapped in the blankets handed out to them, the scene resembled an evacuation center. Aftershocks continued through the night. Concerned that patients with dementia might become slightly unruly or fall down in unfamiliar surroundings, the nurses spent all night at their patients' sides. One of the night-shift nurses recounted that “We worked to the point that we hardly knew what-was-what. We just concentrated on taking care of the patients as hard as we could.” The nurses were only able to take short rest breaks in the hallways.

The week following the earthquake

The next day, a joint meeting of three facilities was held at the disaster response headquarters on a fourth-floor ward, in order to ascertain the patients' situation and the state of affairs with regard to medicines and daily essentials, among other matters. Electric power had been secured, and so televisions were switched on, allowing people to watch the latest news about the accident at the nuclear power plant. The nurses, however, were entirely taken up with looking after the patients in their immediate care. There were rumors about radioactive contamination in particular; goods were not coming into the region, causing serious shortages

of medicines, foodstuffs, and gasoline. The staff resorted to a wide range of measures to cope with the situation.

Meals

Food from storage was doled out for meals. Because the patients had experienced the severity of the earthquake alongside the staff, they were cooperative, and there were few complaints about the suboptimal quality of the fare they were being given. However, there were some patients who threw cans back, complaining, "I can't eat the like of this," and others who used the public phones to call somewhere, asking, "Please get me something safe and tasty to eat." The nurses apologized about the situation, saying, "We're sorry, but this is all we have." At that time, the entire city faced major distribution disruptions, and the shops were out of food.

Human waste a major problem for the nurses

With the hospital now an evacuation center, the flush toilets were unusable due to water outages, and the disposal of human waste was a serious issue. In the week it took before temporary toilet facilities could be installed, restrictions were placed on the number of toilets that could be used. Plastic bags were placed inside the toilet bowls and the bottoms were lined with diapers which absorbed the human waste, and the bags and contents were then disposed of. One of the nurses who handled the task stated that: "When the bags got full, some of the staff would close them, and then we had to place them in the bath area. There are no words to explain how upsetting it all was." However, the quantity of human waste grew day by day, and so it was decided to set up a waste storage location in each ward.

The temporary toilets were located outside of the hospital buildings, so patients were led by staff with flashlights when they went at night.

Preventing infections

The nurses' most serious concern was preventing infections. The water supply remained off, and they used the water delivered by tanker truck as sparingly as possible, while making sure that people washed their hands after using the bathroom and before meals. Disinfectant was also used on people's hands, and daily cleaning was carried out. Infections were thus prevented.

Transfer of patients

For the patients, going into a hospital in a disaster-damaged environment was thought to be an

inexpedient step, and so arrangements were begun to have the patients leave the hospital or transfer to other hospitals. Their families were contacted using those public phones that were still in operation, and family members came to pick up those patients who could be cared for at home. Where this approach was difficult, patients' families were given an explanation about hospital transfer, and their consent was obtained. Decisions were reached about those patients who were to remain at the hospital after consultations. At the time, the hospital had 198 beds. Seventy-nine people were transferred to other hospitals. The transfer of these patients was only feasible because the families, patients and staff too were fully aware of what needed to be done, and everyone was fully aware because this was a situation of disaster. The patients who went back to their families had their conditions checked by ward nurses over the phone, and were visited; those living in group accommodation for the elderly had aid supplies taken to them from the hospital.

Conflicts Among Nurses and Dilemmas Nurses Faced During This Period

There was a shortage of staff immediately after the earthquake, and so a system was adopted whereby the remaining staff in all wards in the hospital would provide care. This resulted in 3 or 4 days of insufficient sleep and little or no rest for nurses. Securing sufficient nursing staff was an even more heroic task after the nuclear power plant accident than in the immediate aftermath of the earthquake and tsunami. Nurse G described the situation at the time as follows:

After the nuclear power plant accident, members of staff's families would get worried, and come to the hospital to pick them up. This led to a lot of tensions among the staff. I think it was really tough both for the staff who evacuated and for the staff who stayed. The nuclear power plant accident was constantly on the news, and that made people more and more nervous. There was the problem with the nuclear power plant, so every day there were more and more staff that couldn't come in to work, you see. I was in charge of a ward, so I'd end up thinking to myself, "Not again. How am I going to share out the work?" But even staffs that can't come into work are still staff, and I think they must have faced a lot of dilemmas. So I'd tell myself not to blame them, and that everyone has their

own approach. Even if they couldn't keep working, I'd try to really put myself in that person's side. (Nurse G)

The nurses had mixed feelings. There were nurses who had temporarily evacuated and then returned, and others who stayed behind and worked on, spending their nights at the hospital. There were nurses who labored on in their own wards, caring for their patients just as they had before, while there were others whose wards had been closed down and they concentrated on outside work because they had no patients to provide care. Rather than working on in a strained atmosphere with her fellow psychiatric nurses, the nurse manager began to think that they would have to do something about the situation:

Just after the earthquake, we felt that we had to take care of the patients who were right there with us, and we really worked flat out. In psychiatric treatment, everybody worked at their own responsibility to carry out the tasks that they had to do, and we all tried to pull together in the same direction for the patients. We wouldn't have been able to do anything in that situation if we hadn't worked like that. We resolved to give medical care at this hospital to the 60 patients we had left, and we worked to restore the ward to normal after that. I still feel it was so tough, even after the passage of time. The thing is, the group ended up being divided into nurses who did recovery operations and nurses who were caring for the remaining patients. Relations among the nurses started to get strained. (Nurse A)

The nurses in the first- and fourth-floor wards had seen their patients transferred out, and they started to feel that they no longer fit in. Also, as groups of four wards were combined into two, some nurses who transferred in from other wards would voice opposition to the way things were done in their new ward. This problem was tackled by holding tea-time meetings as a forum where all the members of staff could take turns to get together, sip tea, and talk with each other:

I think that the 3 o'clock tea-time meeting was a good idea, but not everyone agreed. Some people thought that there was no need to set time aside just for people to drink tea or whatever. The hospital administrators thought it was important to provide time

for relaxation and they wanted to achieve a good maintenance effect, so the tea-time meeting has kept going. Nurses said, "We ought to tailor things for patients, not for the staff." (Nurse A)

What Sustained the Nurses to Continue Working

The nurses and their families were also disaster victims. Against this background, continuing to work as nurses gave rise to various conflicts. Among others, the charge may be leveled that even if nurses were working toward the goal of reopening the hospital, they were not working at their real job, which is taking care of patients. Instead, they were retrieving the hospital's records and equipment from the mud, washing tables and curtains, and doing other such tasks—all the while having to work while their families have the worry of the nuclear power plant accident on their minds, even to the point of sacrificing their families to their work. Nurse B, who had seen the conflicts among nurses and dilemmas nurses faced, described the following scene:

This was a time when people were starting to get nervous. One person burst out crying at the staff meeting. Her family had told her, "Don't go," but she just ignored what her family said and came into the hospital to work. When someone's feelings just exploded like that, well, all the other people there were psychiatric professionals, and what made me feel that they were true professionals was the way that they didn't try to argue her down. All the participants just sat there and heard her out till the very end. When I saw that scene, I felt that it's precisely because they are psychiatric professionals that they had the resources to accept what they were saying. (Nurse B)

Nurse E, who continued working while leaving her young children in her own mother's care, had the following to say:

Just after the earthquake, I finally got through on the phone to my family home, where my mom was looking after my children, and at that time she told me, "You're probably going to choose your job over your family, and no doubt you're someone they absolutely need at the hospital. So, if the nuclear power plant blows up one

more time, I'm going to take your children to a relation's house to evacuate. What are you going to do?" So, I said, "If you can care of the kids for me, please do it." (Nurse E)

The experiences some of the nurses taking part in Katarai had of the earthquake were indeed intense, and the subsequent continual aftershocks had traumatized their children in some cases. Nurse G said that "If the same kind of thing happens again, I realize that I'll be mentally torn between the feeling of wanting to keep working in this job and the urge to quit." Nurse S, who headed into work despite the spreading radioactive contaminations, stated that "I'm going into work at the hospital no matter what. I went even when I had to walk there. So indeed, I'd say I'd choose my work over my family."

Burdened as they are with the multiple tragedies of the earthquake, tsunami, and nuclear power plant accident, these nurses kept participating in these interviews, which were aimed at reviving the hospital. They are indeed proud of the work of nursing, and they talked of their love for their work:

My family evacuated because of this earthquake. I've only been able to keep doing this job because I believe in my family, or rather because they've cooperated with me. The thing is, being a nurse is my mission. A nurse is a nurse forever. And so, I made the decision to put my work ahead of my family. (Nurse H)

Well, it's just something I can't let go and not care about. Whatever I'm doing, if they need me at work, I'll drop what I'm doing and come running. That's who I am, and I'm proud of that to a degree. You see a lot when a disaster like this happens. There's only so much I can do, but I want to do what I can. Whatever it is I can do to help the patients have a fuller life, even if it's just a little better for them, that's what I want to do. (Nurse C)

At the end of Katarai, nurses said such a session was the first time that nurses expressed their feelings that they had kept to themselves. The nurses listened to colleagues' thoughts and feelings that they had never heard before.

Three months after the disaster, in the middle of June 2011, the hospital, with its nursing system back

in place, reopened with its full complement of outpatient, day care, and inpatient departments.

Discussion

The discussion traces the nurses' descriptions of their experiences at the Fukushima psychiatric hospital, which became a disaster site and describes aspects of the situation that fostered the sustaining power of nurses.

During the Katarai process, the nurses began by talking about their work situations at the time of the earthquake. Each nurse mentioned the role they had in their shift. Despite being disaster victims themselves, the nurses' diligence was highlighted. These were nurses who sought to attend work at the hospital at non-disaster times as well as when disaster struck. These nurses' actions represent their internalized perception of their role obligations based on their own values and beliefs as a nurse.

For the nurses, the most important work was to protect their patients and to perform responsibilities to care for their patients. A hospital administrator stated that the absence of patient casualties in the tsunami became a driving force behind the subsequent reconstruction of the hospital (Tago, Kannno, Amou, Kaneko, & Honda, 2012). The nurses described how they closed the curtains after the earthquake so that the patients could not see the tsunami approaching for fear that this would cause mental instability. Moreover, as the hospital ran out of food, and the septic tanks could not function while the water outage continued, the nurses exercised ingenuity, doing their best to manage patients' health and protect them from the secondary disaster. In the hospital, at the time of the disaster, there were no reports of patients displaying acute symptoms or having worsening illness due to the shock of the earthquake.

In addition, nurses observed changes in patients during the crisis as the hospital environment deteriorated and had patients transferred from the hospital. When the damaged hospital could no longer continue to operate, patients whose families could be contacted returned to live with them. Patients who had returned to their homes received care from nurses and social workers who visited their homes. Consequently, the patients could live at home and be discharged. Thus, changes in patient conditions caused by the changes in the environment were not always negative, and some situations changed for the better, prompting nurses to reconsider their nursing care in the hospital. One psychologist who had worked at a group home related to the hospital suggested "believing in the strength of users (the patients)" was a lesson to be learned from

the experience of the earthquake (Kawamura & Honda, 2012, p. 29).

Since nurses and public health nurses were both disaster victims and professionals, they correspond to the first stance explained in the Methods section; that is, they were responsible for providing support to disaster victims but were also victims themselves. The dilemmas and conflicts experienced by these nursing professionals have been addressed in previous studies (Kayama et al., 2014; Minarik & Nakayama, 2017).

Fukushima prefecture suffered a threefold disaster described previously. Anxiety spread among residents in the community; in particular, nurses with young children had no choice but to stop working at the hospital and evacuate their children. Nurses who continued working hard at the hospital understood their colleagues' decisions, but, at the same time, they experienced the exhausting reality posed by falling staff numbers. Staff leaving the hospital led to a decrease in workplace morale (Honda, 2012).

In the case of the hospital, conflicts arose among nurses when patients were transferred and the hospital was downsized due to the damage it had incurred. When such fissures arose in the relationships among nurses, hospital administrators conveyed the message that every member of staff was playing an important role in preparing to reopen the hospital. Administrators supported the staff as they faced this stressful situation by holding a hospital meeting, to clarify the recovery process and policy (Honda, 2012). Moreover, the nurses took care to ensure that they themselves did not burn out, using a process known as "nurse maintenance." The nurses were experienced in providing mental health care for the disaster victims each time disasters happened in the past. The fact that the nurses, who continued working, night and day, in the initial period after the earthquake, established shifts and began taking breaks can also be regarded as a practical measure that enabled them to continue their work under such difficult circumstances. These interventions suggest that the nurses were thinking about ways to reduce stress when they became the victims of a disaster.

The following section summarizes what sustained the nurses to continue working and how this was influenced by the hospital's organizational culture. Endo (2013) stated that this particular hospital was already characterized by a perception among nurses who were raising children as having a favorable working environment. It was considered a hospital in which nurses could balance work and family, a "family-oriented" workplace. Because the hospital administrators and nurse managers knew the faces of all staff and other personnel, they were able to understand their respective situations.

The nurses' narratives illustrate that these nurses like being a nurse and feel proud of it, but at the same time, it is clear that the nurses are supported by an understanding among their family members that the job of a nurse occasionally requires prioritization of patients over family.

Another characteristic of this "family-oriented" organization is the small scale of the hospital, which has approximately 200 beds, making it easy for the policies established by the hospital administrators to be conveyed to all members of staff (Endo, 2013). Although the nurses were experiencing various conflicts, they were able to move forward under the policy of caring for all remaining patients and the shared vision of reopening the hospital. Good communication between the hospital administrators and staff seems to have reduced nurses' stress and helped them utilize their individual abilities.

Conclusions

This study has examined only one psychiatric hospital, which, before the disaster, was known for placing importance on harmony, priding itself in caring for others, and building close relationships with patients and staff. This study shows that the existing organizational culture of the psychiatric hospital was an important factor in uniting its staff and achieving a successful recovery despite the damage incurred in the disaster. At the root of this success were the decisions and leadership of the hospital administrators, including the nurse manager, as well as the detailed care and support for individual nurses. Furthermore, through the earthquake experience, the nurses reconsidered their own ways of living and ways of nursing that they had not thought about before the disaster. The nurses had deep responsibilities to patients and were living the values and beliefs they held about what it means to be a nurse. Clearly, whether it is natural disaster or conflict caused by man, healthcare infrastructures are challenged when unexpected disruptions occur. The findings of this study are applicable not only because they provide guidance about infrastructure development for disaster preparedness but also because they provide practical methods to support nurses who are placed in strongly stressful situations and must protect patients.

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