Experiences of public health nurses in remote communities during the Great East Japan Earthquake

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Abstract
Aim: Public health nurses (PHNs) provide services to residents during disasters. Understanding PHNs’ experiences in affected areas could redefine PHNs’ roles in public health at a community level and provide valuable suggestions to local government organizations for future mass casualty events. This study aimed to reveal the experiences of local government PHNs working in a rural affected area after the Great East Japan Earthquake.

Methods: An ethnographic approach was used. Data collected from semi-structured interviews, participant observation, and statistical documents, yielded in-depth information regarding the experiences of seven PHNs who were survivors and continued working after the disaster.

Results: Three themes were identified; namely, “a local PHN rooted in our town,” “carrying out responsibilities after confirming the family’s safety,” and “being ‘a survivor’ while also not forgetting their roles as ‘a local PHN rooted in our town.”” PHNs who were not at their workplaces during the disaster felt guilty about being unable to help in the same manner as their colleagues. Information about the safety of their families enabled the PHNs to perform under pressure. Moreover, they could not forget their responsibilities, even though they were also survivors.

Conclusion: The experiences of PHNs in the affected areas are important in order to understand the combination of being a professional, a family member, and a survivor, all at once. It is crucial to elicit PHNs’ feelings through self-disclosure, so that they can receive appropriate support (based on gender and their individual situation) from relief personnel.

Key words: public health nurse, ethnography, earthquake, experience

INTRODUCTION
On March 11, 2011, the Great East Japan Earthquake, measuring 9.0 on the Richter scale, struck the Tohoku region on the northeastern coast of Japan (Japan Meteorological Agency, 2011). This earthquake generated a catastrophic tsunami (Yamamoto, 2011; Doran et al., 2013; Ishigaki, Higashi, Sakamoto, & Shibahara, 2013), killing 15,885 people and injuring 6,148 (National Police Agency of Japan, 2014). The disaster changed people’s lives and interrupted the public health system, also destroying infrastructure (Noji, 2005; Ranse & Lesnon, 2012). Though several professionals work close to the communities, public health nurses (PHNs) play the leading role in the public health activities during major disasters (Yang, Xiao, Cheng, Zhu, & Arbon, 2010). They effectively respond to a substantial number of health needs and help facilitate community recovery after the disaster, followed by their usual activities (Okuda, 2005, 2008). During the Great East Japan Earthquake, Japanese PHNs provided services in their communities without means of communication, in isolation for several days, while unaware of their families’ safety.

In Japan, a PHN is defined as a person licensed by the Ministry of Health, Labour and Welfare to use the title of “PHN” and provide health guidance in a professional
capacity (Act on Public Health Nurses, Midwives, and Nurses, 1948). They mainly engage in preventative activities within the public health field, without providing clinical care, as would nurses working in hospitals (Ueno, 2012; Japanese Nursing Association, 2014). PHNs commonly play key roles in major disasters, assuming responsibilities by not only prioritizing service provision, but also assessing, managing, and planning for the public health of the community with a competent managerial and leadership style (Jakeway, LaRosa, Cary, & Schoenfisch, 2008; Polivka et al., 2008).

Several studies have focused on the experiences of PHNs or nurses dispatched to the disaster areas (Shih, Liao, Chan, & Gau, 2002; Hayano & Kawahara, 2009; Nakanobu & Yamada, 2009; Yang et al., 2010; Sloand, Ho, Klimmek, Pho, & Kub, 2012; Sloand, Ho, & Kub, 2013), and found that nurses who provided support were traumatized by sights such as dead bodies and dilapidated houses, as well as experiences with greed and difficulty working in an unfamiliar environment. However, the nurses also felt positive, as their experiences gave them a chance to grow professionally and personally, despite challenges and working under strenuous conditions (Shih et al., 2002; Hayano & Kawahara, 2009; Yang et al., 2010; Sloand et al., 2013).

Furthermore, studies that focused on nurses at hospitals in affected areas indicated that they worked flexibly with limited personnel and medical equipment, as compared to nurses from areas other than the devastated areas who offered support services (Sakai, 2002). In addition, they were concerned about their families and patients, due to an inability to confirm the security of these individuals (Urabe & Miyasono, 2007). However, nurses in the affected areas assumed the responsibility and commitment of specialists; therefore, they did not express these feelings freely (Urabe & Miyasono, 2007; Geisz-Everson, Dodd-McCue, & Bennett, 2012; Ushio, Osawa, & Shimizu, 2012).

Although several studies have investigated the general experiences of nurses and PHNs who were dispatched and the experiences of nurses working in affected areas, the experiences of PHNs working within affected areas have not been studied. PHNs were, at the time of the disaster, closest to local residents and played a major role regarding the public health of communities. Describing the experiences of PHNs working in the disaster area may help to redefine PHNs’ roles as public health professionals at the community level to determine the necessary preparation in the event of a disaster. Such descriptions may also provide valuable suggestions to local government organizations regarding preparation and support needed for future mass casualty events. Therefore, the aim of this study was to explore the experiences of local government PHNs working in a rural area affected by the Great East Japan Earthquake.

METHODS
Design
We used an ethnographic approach, which is a type of qualitative design, to interpret PHNs’ experiences during the disaster. Ethnography is a type of qualitative inquiry involving the description and interpretation of a culture and cultural behavior (Polit & Beck, 2014), and learning about people directly from themselves (Roper & Shapiro, 2000; Oda, 2011). This approach was adopted to yield insights into PHNs’ experiences who were in rural, depopulated towns in the aftermath of the disaster.

Study area and participants
Three rural areas within X city that were the most affected following the earthquake (over 46% of the area was flooded and more than 4,000 people died) were selected for inclusion in the study. The three study areas were within a 1-hour drive of urban X city. The population was approximately 4,000 in each of the three areas; all the areas had experienced depopulation and population aging. The damage was severe in the three areas, and approximately 570 people died or were missing, including staff who worked at the branch offices of the X city local government. Two branch offices were fully destroyed by the tsunami and isolated for several days without any assistance.

Purposive sampling was used to select seven key informants who were PHNs at local government branch offices in the three selected areas and could maintain their composure while discussing their personal disaster experiences (Table 1). First, the researchers recruited four PHNs with whom one researcher was familiar. These PHNs worked harmoniously with the researcher for nearly 2 years following the disaster to provide assistance and cooperation with the observation of participants in this study. One month after obtaining their consent and starting the interviews, three new PHNs were introduced in addition to the original four; these three PHNs had also experienced the tsunami, worked for the community in a similar situation, and had known each other and the researchers for some time.

Data collection
In-depth interviews, observations, and records were the data sources for this study. In-depth interviews were
collected from key informants and collateral informants who understood PHNs’ activities and could adequately describe PHNs’ experiences from different perspectives. These individuals included colleagues, supervisors, and community residents. The key informants’ interviews were used as primary data, and other interviews were used collaterally to fill any gaps in PHNs’ recollections of activities and experiences. Regarding observations, before the interviews, we visited the three study areas several times after the catastrophe to witness the casualties, restoration and reconstruction, and the locus of the PHNs’ activities. We extracted and analyzed the data related to these experiences, feelings, and concepts of PHNs. We obtained PHNs’ permission to use these data. We also collected information from population statistics, maps, and records such as the statement of activities during the disaster, as well as memos that were exchanged informally via e-mail records between PHNs and the researchers, PHNs’ daily diaries after the disaster, and interview records.

Interviews with the key informants were semi-structured, with each being interviewed an average of 3.3 times (85.1 min/interview). Based on the interview guide, the key informants were interviewed about their background and motivation to become a PHN, the predicament, their actions, their feelings soon after the earthquake, their professional and individual activities and responsibilities after the disaster, and the meaning they associated with the disaster. Interviews with collateral informants were one-off interviews averaging 78 min. They were asked about their attitudes regarding the disaster, what PHNs mean to them, and their disaster experiences with PHNs. The same researcher conducted all interviews to standardize the quality and content of the interviews. Moreover, the researcher practiced the interview with a civil servant and transcribed the interviews to examine the question contents and methods among all researchers before beginning the intended interviews. Interviews began nearly 2 years after the tragedy, from February to September 2013.

**Ethical considerations**

Ethical approval was obtained from the Ethics Committee of Tohoku University Graduate School of Medicine (No. 2012-1-500). Informants were asked to sign a consent form prior to participation, and were informed of the risks and benefits associated with participation. As a follow-up measure, the interviewer called each informant 1 week after the interviews to check on their emotional wellbeing as a result of remembering the disaster after the interviews.

**Data analysis**

First, we individually analyzed data from the seven PHNs and then integrated the individual results. Face-to-face interviews were transcribed verbatim, and a team of three qualitative research experts analyzed the transcripts of the informants’ interviews and their overall meaning. The transcripts, other documents, and notes were carefully read and re-read to create sentences of a manageable length according to meaning. We then sorted them into categories to determine the essential implications with regard to commonality and foreignness. Each aspect of the data classification was examined sequentially and repeatedly, and the researchers continued to discuss and rectify these descriptions of the individual results, including interpretation until they were consistent with the themes (Hammersley & Atkinson, 2007; Oda, 2011). Subsequently, we consolidated and categorized the themes derived from the individual analyses through comparisons, and we repeated the discussion regarding the classification of the data according to the typical activities and views and diversity patterns. We explored the relationships with regard to meaning and grouped the themes. We repeatedly interpreted and explored the meaning. We then specified the key phrases generalizing the phenomenon of the PHNs’ experiences and conducted an integrated analysis of all the data. Finally, we derived the PHNs’ experiences and focused on the three themes using key phrases that emerged during the early stages of the disaster.

**Data reliability**

Strategies were used to enhance the rigor of the findings. The interviews were conducted by one researcher to ensure uniformity. All verbatim transcriptions were verified by the interviewees. Multiple data, such as analytic notes, memos, and photographs, were used to record emerging insights of the analysis (Polit & Beck, 2012), and represent theoretical ideas forming an audit trail of the analysis (Hammersley & Atkinson, 2007). Multiple examinations of the data, coupled with the investigators’ discussions, supported the credibility of the study findings. Both individual and integrated analyses results were provided to the key informants for approval.

**RESULTS**

The seven key informants were all female PHNs; six of them were in their 30s, 40s, and 50s; the other PHN was in her 20s (Table 1). Five were married, one was divorced, and one was single. Moreover, five of the key
informants had children. The average work experience as a PHN was 16.4 years. Although none had lost their families, two of the PHNs’ houses had been destroyed.

Four PHNs had experienced the tsunami in their working areas, whereas three were not in their offices at the time.

Themes

We used “key phrases” to describe the three themes: “A local PHN rooted in our town”, “Carrying out responsibilities after confirming the family’s safety”, and “Being ‘a survivor’ while also not forgetting their role as ‘a local PHN rooted in our town’”.

A local PHN rooted in our town

Public health nurses who were at their workplace when the disaster struck protected locals’ lives before their own through evacuation in light of the imminent danger of the tsunami. One PHN physically pushed residents to an upper roof while watching a nearby area become engulfed, and another continued to call out to locals to escape while driving. PHNs thought that “a local PHN rooted in our town” was obliged to guard the lives of locals in adverse situations (Fig. 1). Although the PHNs were extremely worried about their own families’ safety, they felt unable to escape their current situation. They conducted emergency care for the seriously injured and weak elderly individuals, despite the absence of health personnel and lack of medication and medical equipment. An example included “The conditions of patients with hypothermia were most severe. One PHN grumbled, ‘He is going to die.’ We rubbed his body, and covered him with more than 10 blankets.” Conditions remained the same the day after the disaster. The PHNs continued to provide nursing care

PHNs, public health nurses.
Public health nurses who were at workplace

- Did not know whether their families were safe
- Tried not to consider about their families because of the responsibilities for residents’ lives
- Even though knowing their families’ safety by phone, they still had no inner peace

PHNs who were away from workplace

- Eliminated anxiety about their families’ safety by seeing their children

To ease the minds, PHNs needed to see with their own eyes how their children were doing.

Figure 2 Carrying out responsibilities after confirming the family’s safety.

as needed. They also considered how they would survive the chaos in the isolated and affected areas, where emergency support was not guaranteed. The PHNs searched for food and cooking equipment by digging through the rubble and then prepared meals for the residents. One PHN appointed herself the director-general at the disaster headquarters, even though she was the youngest among the branch of finance’s staff; thereafter, she was informed of most of her colleagues’ deaths by the tsunami. “For several days, everybody said very little. Everyone made desperate efforts. We all thought about what to do and what we should do.”

In contrast, PHNs who were away from their working areas put their lives in danger in many ways. These PHNs made accurate judgments under unusual conditions and took immediate action with no one to depend upon. They autonomously navigated around hazards and obtained necessary information.

I thought that I could not get out of the car if the water rose further. I slung my bag over my shoulder and opened the car door. The water was already up to my knee. I quickly climbed a fence.

After ensuring their security, the PHNs wished to return to an environment where they could work as “a PHN in local government.” As they believed their roles to be that of supporting local residents as civil servants, being unable to fulfill their responsibilities was unbearable. In other words, professional awareness as “a PHN in local government” made it hard to accept being in the same position as the locals. “One man went to get some food from his house and distributed it to the evacuees, including me. I thought that we had reversed roles, and I could not stay here any longer.”

After the PHNs started working as “a PHN in local government,” they were powerless to return to their working areas. The PHNs became increasingly aware of the immense damage and thought of their colleagues at the branch offices being under pressure without any assistance. “I thought that I should return to my workplace. I had a feeling that I belonged there, because I had been trained by my colleagues and residents and I learned everything from them.”

When the PHNs returned to their workplaces, they were shocked by the destruction and having to confront the deaths of their acquaintances. Upon seeing their colleagues busy at work, the PHNs felt alienated and guilty about their inability to help during the disaster. The PHNs felt emotionally inferior to their colleagues, automatically saying “sorry.” However, PHNs went about their jobs, covering up feelings of guilt.

Carrying out responsibilities after confirming the family’s safety

Public health nurses who were at the branch offices during the disaster did not know whether their families were safe (Fig. 2). When they decided to put residents’ lives ahead of their own, they consciously dismissed their concerns regarding their families. However, they re-
mained committed to their families. Whenever the PHNs found a few minutes, they tried to contact their family members by telephone. Nevertheless, the PHNs (particularly those with small children) longed for their children. “When it became dark and cold, I worried if my children were shivering in the cold, going hungry, or crying and missing me. Thinking about my children, I did not have any energy to eat and get warm.”

Even after the PHNs knew of their children’s safety, they still had no inner peace. To ease their minds, the mothers needed to see with their own eyes how their children were doing. Interestingly, once the PHNs were assured of their children doing well, more than ever before, they became motivated to work harder as “a local PHN rooted in our town.”

Even though my father told me that my children were being kept warm with enough food, I could not feel secure until I saw them. After seeing their faces and the condition that they were in, I felt that I could work.

In contrast, PHNs who were not office-bound during the disaster eliminated anxiety about their families’ safety by seeing their children. Although they were in a stressful environment in which they did not see their families again for several months after returning to the branch offices, these PHNs did not think about their families while working.

I found all my family members alive. Since then, I have thought that my children were being taken care of by someone and I did not have any worries. But, when I did not know, I had a genuine desire to go looking for my children.

The PHNs lost nearly everything that they took for granted in daily life, such as a private toilet, a warm room, and a hot bath. Moreover, they had difficulty relaxing and forgetting their mission as “a local PHN rooted in our town,” as they spent all their time around the locals (Fig. 3). The PHNs ate poorly and held off on trips to the bathroom, which led to dehydration and weight loss. There was only one partition used to create a toilet in a communal space, and the reality of meeting someone’s gaze during defecation impaired the PHNs’ dignity. They shivered in the cold because of insufficient blankets and lack of heating measures; their needs in this regard were secondary to those of the residents. “There were portable toilets outside, and I did not know who was waiting for me there. It was impossible to defecate in such an unsettling environment. I once ran to a nearby hospital to use a private toilet.”

The PHNs experienced impairment in their dignity because of the goodwill and support from volunteers in the form of thoughtful words and actions. When they were not expecting any aid, such as in an isolated region, they were impressed by any form of relief and support. However, shortly after the acute period, the PHNs began to see negative aspects of the volunteers. The PHNs were hurt by the volunteers’ casual comments and by being given tattered pieces of clothing. Nonetheless, some PHNs received favorable remarks because they understood the residents’ backgrounds and knew them by name, which helped them gain the residents’ confidence in them. Their experiences of both discomfort and

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**Figure 3** Being ‘a survivor’ while also not forgetting their role as ‘a local PHN rooted in our town’.

**Experiences of both discomfort and comfort with outside supporters were because of being “a survivor” and “a local PHN rooted in our town”**

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**Being ‘a survivor’ while also not forgetting their role as ‘a local PHN rooted in our town’**

- The residents’ needs were first
- Difficult forgetting their mission as ‘a local PHN rooted in our town’
- They received favorable comments from outside supporter

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**Being ‘a local PHN rooted in our town’**

- Lost nearly everything taking for granted in daily life (Ex: toilet, warm room, hot bath)
- Difficulty relaxing
- Spent all the time with local residents

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comfort with outside supporters were because they were both “a survivor” and “a local PHN rooted in our town.”
Some volunteers said that PHNs were crazy to rest during an emergency. We thought that it was important to stop lending support and, rather, return to the normal health system, working on weekdays only. We made various efforts to return to normality.

DISCUSSION
The three themes that emerged from this study informed our understanding of the experiences of PHNs who worked at the sites affected by the Great East Japan Earthquake. The three themes explained PHNs’ concerns and weariness with regard to their role as both a civil servant and a survivor, as well as that of both a professional and a family member, due to being a dedicated servant of the nation. In particular, this indicated how crisis-ridden PHNs, facing the imminent danger of the tsunami, could work in unpredictable conditions in terms of necessary emergency support. Accordingly, we focused on the acute phase in this study.
The first theme, “a local PHN rooted in our town”, showed that the experiences differed between PHNs who were at their workplaces during the disaster and those who were not. Specifically, those who could not be at their workplaces soon after the disaster felt unfocused and guilty. Yamazaki and Tanno (2009) showed a similar result in their study of stress among hospital nurses after the earthquake; their absence immediately after the crisis severely traumatized the nurses. Due to the nature of the job, PHNs might not be in the office at the time of a disaster. PHNs in this study were conscious of being civil servants in the local government. PHNs usually understand the importance of fairness and communal identity, and recognized the significance of their duty in considering the human rights and advocacy of the residents as servants of the whole community (Hirano, Saeki, & Ueda, 2012). Furthermore, building occupational identity is affected by the employment environment (Yamada, 2011; Ota, Tawara, Nitta, & Okumura, 2013). PHNs in this study were local PHNs rooted in their town developing their identities, which were fostered by the community, their supervisors, and colleagues. It might have been difficult to not assume their responsibilities as servants of the local government when the inhabitants were in a time of need. However, given the nature of the job, PHNs should recognize that they may not always be at their workplaces and should simulate what they would do in a disaster.

Moreover, PHNs and Japanese individuals in general usually respect others’ feelings and keep their feelings to themselves (Morisaki, 2002, Ushio et al., 2012). Speaking about their experiences leads to self-disclosure and a chance to acknowledge their vulnerabilities and accept the assistance of others (Tedeschi & Calhoun, 1996, 2004). Having the courage to express their feelings to others may help PHNs to acknowledge their weaknesses and allow colleagues and relief personnel to discover what they can do for PHNs. Although several studies have discussed stress relief and coping mechanisms (Kato & Asukai, 2004; Huizink et al., 2006; Valenti et al., 2014), it is imperative for PHNs to express their feelings (Hara, Nakamura, Okahisa, & Tada, 2013; Sloand et al., 2013; Yamada, Hisazumi, Yoshida, Daitou, & Aoki, 2013) and for others to offer words of inspiration and find value in PHNs’ activities (Kato & Asukai, 2004; van der Velden et al., 2012). To this end, it is crucial that local governments enhance the workplace environment to foster open communication under usual conditions and strengthen disaster simulation training, including how to accommodate staff’s concerns about such as the feelings of exclusion and anxieties held by PHNs during this disaster.
Similar to results of a previous study (Urabe & Miyasono, 2007), it was demonstrated in the second theme that confirmation of their families’ safety allowed PHNs to stay focused on work. Moreover, we revealed that safety does not only mean obtaining information about the safety of one’s family, but direct confirmation of such safety by the PHNs. In this study, all the PHNs were women, and five of them had children. According to previous studies, nurses’ gender influenced their activities in a disaster (Ehrenstein, Hanses, & Salzberger, 2006; Garrett, Park, & Redlener, 2009; Imai, et al. 2010; Loke, Fung, & Liu, 2013). Women are usually more worried about their families’ safety than are men (Weissman et al., 2005), and women who are separated from family members following an earthquake have an increased risk of depression and anxiety (Anwar, Mpofu, Matthews, Shadoul, & Brock, 2011). Typically, women show commitment to their families after the disaster, caring for children and elderly individuals (Richter & Frowers, 2008). It has been reported that the presence of children and the need for them to be cared at home is an element that acts as a barrier to nurses’ inclination to show up for service (Garrett et al., 2009; Imai et al., 2010). Being free and relieved of the concerns of family members facilitated PHNs’ motivation to work.
It has also been indicated that confirming an evacuation route and a safe evacuation space for families (Loke et al., 2013) leads to reduced anxiety among PHNs with
regard to children and an ability to attend work. Furthermore, it is important to secure a resource person who can confirm the safety of PHNs’ children and utilize a correspondence procedure to contact families when communication systems are limited. Working in parallel with individual preparedness, local governments recognize that PHNs are able to concentrate on their task, obtain sufficient support after the direct confirmation of their families’ safety, and establish a system for directly confirming the safety of staffs’ families during disasters. The precise, concrete, and practical methods of confirmation should be discussed among staff in local governments to avoid having the same disillusionment feelings as those experienced by the PHNs in this study.

The third theme, “Being ‘a survivor’ while also not forgetting their role as ‘a local PHN rooted in our town’”, indicated that PHNs in the affected areas had conflicting feelings regarding their multiple roles as both relief personnel (PHN in local government) and survivors (family member). Despite experiencing inconvenience and anxiety regarding their future prospects as a survivor, PHNs could not show their concerns as a local PHN, and had to bear with the situation, endure, and endorse a fatalistic perspective. Geisz-Everson (2012) reported that during Hurricane Katrina, nurses who were trapped in the hospital experienced extreme emotion related to their volunteerism and a hyperexcitable state, and they could work with amazing power and concentration to provide around-the-clock care to patients during the acute phase. However, their tiredness and stress came to a head a few days after the disaster. They would stay with the community members for 24 h, as PHNs could not forget their responsibilities as “a local PHN in our town”, which produced stress. A systematic literature review explored ethical preparedness for public health emergencies and found issues related to the conflict between responsibilities as a specialist and the role as a family member, in addition to judging triage and prioritizing care (Johnstone & Turale, 2014). PHNs were also survivors for showing up to work despite the havoc wreaked on their lives (Iwamura, 2010). Basic human rights are guaranteed equally to everyone under any circumstances. At the very least, it is crucial for PHNs to secure their own safety when in danger (Davis, 2014). Moreover, sharing opinions and having the same values regarding disaster ethics among local government staff may help others to avoid facing the same pressure as that faced by PHNs in this study.

Limitations

This study was limited in that the target areas were remote districts with small populations. Moreover, although the participants differed in age and family structure, all were female. Therefore, it may be difficult to generalize our results to an urban area and male PHNs. Additionally, we used participant observation and selected seven PHNs with whom the researchers were familiar. Although the approach required being involved in the setting as closely as possible without losing our objectivity, the participants may have limited our ability to objectively investigate certain events.

Furthermore, the ethnographic method has good flexibility but is difficult to standardize among qualitative methods, and it is impossible to generalize using numeric data through an objective, systematic approach similar to quantitative methods. However, we assumed that using the ethnographic method permitted focused attention on an overall perspective and understanding of what happened to PHNs during the acute phase of the disaster on account of the detailed description provided.

CONCLUSION

The experiences of PHNs in the affected areas during the disaster are important in understanding the phenomenon of being a professional, a family member, and a survivor all at once. The findings show that the PHNs’ key role was to protect locals’ lives and health during the disaster, which was compatible with their normal duties. Preparation for the disaster involved not only receiving training and preparing materials, but also simulating a variety of situations and emergencies, including not being in the workplace, not having colleagues’ assistance, and losing contact with families. It is crucial to ascertain PHNs’ feelings through self-disclosure so that appropriate support from relief personnel (depending on gender and the individual situation) can be put into place. Moreover, local government organizations should discuss disaster ethical considerations with PHNs to collect diverse information about family safety during future mass casualty events.

REFERENCES


Davis, A. J. (2014). Ethics needed for disasters: Before, during, and...
after. *Health Emergency and Disaster Nursing*, 1, 11–18.

Doran, R., Oshitani, H., Kamigaki, T., Mimura, S., Sato, M., Tamamura, B., & Nishina, T. (2013). Public health recovery after the Great East Japan Earthquake: Experiences in selected areas of Miyagi prefecture. Sendai city, Japan: Center for Community Health, Tohoku University Graduate School of Medicine & Sasaki Peace Foundation


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Roper, J. M., & Shapira, J. (2000). Now Go Do It!, Method in


