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Nurse Participation in Continuing Education in Disaster Nursing in Taiwan

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The country of Taiwan is extremely vulnerable to natural disasters. A global risk analysis of natural disaster hot spots identified Taiwan as the number one country with the greatest risk of exposure to at least 4 natural disasters, and it ranks among the top 10 countries at relatively high mortality risk from multiple hazards as well.[1] In the past 2 decades alone, the country has experienced a number of devastating disasters including earthquakes, typhoons, floods, infectious diseases outbreaks, and aircraft accidents. Nurses constitute the largest number of health care providers playing decisive roles in all 4 phases of disasters management: mitigation, preparedness, response and recovery.[2] Therefore, nurse competency in responding to all phases of disasters is critical. This competence can be cultivated and enhanced by providing disaster nursing education, the importance of which has been addressed by nursing societies and entities around the world.[2,3]

Research suggests that although nurses recognize the importance of disaster education, only a limited number of nurses have actually received disaster education.[4] Despite the many major disasters experienced in recent years and the well-defined significant risk of exposure to all types of disasters, very limited disaster nursing continuing education has been provided in Taiwan. Additionally, information regarding issues surrounding disaster nursing education in the country is sparse.[5,6] Recognizing the importance of disaster nursing education, and having a desire to better prepare nurses to function effectively in all phases of disaster, the Taiwan Nurses Association (TWNA) launched a disaster nursing continuing education series in 2012.

The objectives of the disaster education series are to familiarize participants with the nursing roles and responsibilities in disaster situations and to prepare nurses for playing crucial roles in all phases of disasters. The course has been offered annually at various locations throughout Taiwan to nurse members of TWNA with free access. Course materials are provided at the TWNA Disaster Nursing Committee Web site after the face-to-face courses are offered. Course content is aligned with all 4 phases of disaster management. Detailed course information is summarized in Table 1. Although the continuing education courses have been provided for several years, participant-specific information was limited. To ensure that the education is meeting its goals and to guide future development and promotion of disaster nursing continuing education, a study was conducted to delineate relevant issues regarding disaster nursing education in Taiwan. This article describes our findings and their implications.

Method

STUDY DESIGN AND DATA SOURCE

The study involved completion of an anonymous survey questionnaire by nurse attendees after each 8-hour TWNA disaster nursing course held during the period of 2012-2015. A total of 1817 participants in 18 continuing education courses were surveyed. Two courses were taught in 2012; 4 in 2013; 8 in 2014; and 4 in 2015. Two data elements were collected: workplace and nursing specialty. This study was conducted in accordance with the TWNA Human Subjects' Committee review processes.

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TABLE 1
Taiwan Nurses Association disaster nursing continuing education course content

Phase of disaster	Topics
Mitigation	Epidemiology and risks of the disasters
	Management recourses of the national and community disasters
Preparation	Exercise of the disaster preparation plans
	Ethical, legal, and liability issues in disasters
	Gender and cultural consideration and needs
	Personal preparation and protection in various disasters
	Communication and sharing of the information
Response	Disaster assessment and community resources management
	Infection control and management principles in disasters
	Initial aid and disaster triage
	Interaction with and support for disaster victims
	Physical, mental, and family care of the disaster victims
	Care to vulnerable groups and their families
	Health care models in disasters
Recovery	Recovery of the individual, family and community
	Referral resources and long-term care in disasters
	Records and research in disasters

DATA ANALYSIS

Descriptive statistics of the total number and percentage were used to quantify workplace and nursing specialty. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 22 (IBM Corp, Armonk, NY).

Results

The findings of this national study show that the overwhelming number of course attendees were hospital-based nurses (n = 1558, 85.7%). This finding was consistent across all of the years studied (see Table 2). Workplaces having the fewest attendees each year were public health centers, long-term care centers, and schools. The major specialties of hospital-based attendees were emergency/critical care (n = 556, 30.6%), followed by medical (n = 304, 16.7%) and surgical nurses (n = 217, 11.9%; see Table 3). It should be noted that the category emergency and critical care is combined because nurses who work in emergency also work in critical care units; these 2 specialty areas will be separated in future studies.

Discussion

The study findings that course attendees were predominantly hospital-based nurses and that nurses employed in public health centers, long-term care centers, and schools had the smallest attendance warrants attention. International scholars have recommended that disaster responses by the nursing workforce should not rely solely on hospital nurses.[5] Reliance on hospital nurses to respond to disasters may be problematic for 2 reasons. First, hospital nurses are always enlisted to respond to disasters and already have professional obligations to provide care for hospitalized patients. As a result, the workloads of hospital nurses increases and the effectiveness of the health care service in disasters is ultimately reduced. Second, the health care needs associated with a disaster are not limited to those encountered in a hospital setting; nursing expertise in

TABLE 2
Disaster nursing course attendee workplaces

	Year				
Workplace	**2015**	**2014**	**2013**	**2012**	**Total**
Hospital	362	585	288	323	1558
Clinic	14	25	14	19	72
PHC	0	2	0	1	3
LTC	5	15	7	4	31
University teacher	10	34	11	17	72
School nurse	0	7	1	3	11
Others	13	29	15	13	70
Total	404	697	336	380	1817

LTC, Long-term care; *PHC,* public health center.

TABLE 3
Specialty of disaster nursing continuing education attendees

	Year				
Nursing specialty	**2015**	**2014**	**2013**	**2012**	**Total**
Emergency/critical care	149	213	93	101	556
Medical	55	110	64	75	304
Surgical	54	60	51	52	217
Other	25	73	47	44	189
Psychiatric	24	50	19	9	102
OR	17	40	12	20	89
Clinic	13	36	7	12	68
Pediatric	16	17	12	21	66
OB/GYN	12	17	10	10	49
Community	5	21	4	11	41
Respiratory care	10	5	9	10	34
Hemodialysis	8	17	1	7	33
Palliative/hospice	10	8	5	6	29
Chinese medicine	2	8	2	2	14
Total	400	675	336	380	1791

OB/GYN, Obstetrics and gynecology; *OR,* operating room.

public health, shelter care, treating minor health care problems, and managing acute exacerbations of chronic disease management is required as well.

For instance, typhoon is the most common type of natural disaster encountered in Taiwan and causes more deaths than any other natural disaster in the country. Health care needs for typhoon survivors include treatment for hypothermia and traumatic injuries and addressing the needs of an aging population dependent on routine care and treatment for chronic medical problems (eg, metabolic and cardiovascular diseases). Typhoons may also lead to disruption of water treatment and sanitation resources, resulting in increased potential for exposure to infectious diseases. After a typhoon, there is also an increased need for treatment of anxiety, anger, grief, and depression. Previous studies suggest that nurses who work in the community, for example, community/public health nurses, long-term care nurses, and school nurses, should take responsibility in all phases of disasters.[7,8] Community/public health nurses are expected to play critical roles in all phases of disasters, because disasters have substantial impacts on communities.[9] The growing aging society has led to increased numbers of elderly people living in long-term care facilities; a number of global news stories have highlighted the vulnerability of these residents during and after disasters. Accordingly, nurses involved in long-term care are advised to be prepared to respond to disasters.

In Taiwan, the importance of school nurses in responding to all phases of disasters has been emphasized, and disaster nursing is listed as one of the core competencies for providing nursing care on school campuses.[10] However, this study's findings revealed that few nonhospital nurses participated in disaster nursing continuing education that could enhance their competencies to respond to all phases of disasters. Strategies for enhancing nonhospital nurses' participation in continuing education in disaster nursing, such as online courses, should be further explored.[11–16] For instance, in the United States, the Medical Reserve Corps provides online training courses to help prepare local medical and nonmedical volunteers to assist during public health emergencies.[11]

The availability of a Taiwanese nursing workforce prepared to respond in all phases of a disaster is concerning. Health care services provided in Taiwan are primarily government funded. At present, 261,972 nurses work in Taiwan; 111,526 of these nurses (approximately 43%) work in hospitals. Only 58.5% of nurses are actively working in the nursing field.[17] As in many other countries, Taiwan has a nursing shortage, with an annual workforce deficit of 5000 hospital nurses. A prior document addressed an effective public health emergency response need to incorporate hospital-based nursing resources because the patients who require the most time-sensitive and critical care will seek hospital care in any emergency. The hospital-based workforce and, particularly, hospital nurses, have the largest proportion of health care workers.[18] Therefore, a nursing workforce shortage can have a negative impact on a hospital's capacity to respond to disasters and public emergencies.[19] Accordingly, the influences of the nursing shortage on the nursing workforce response to disasters should be addressed and explored from policy, practical, and educational perspectives. Unlike other countries that have legal regulations and guidelines to release hospital nurses to respond to disasters, such processes that facilitate the allocation of the nursing workforce in response to disasters have not been developed in Taiwan. Without those regulations and guidelines, the existing nursing workforce deficits and professional obligations to provide care to hospital patients increase the difficulty of enlisting nurses to respond to disasters in Taiwan. Additionally, the 41.5% of Taiwanese nurses not working in nursing should be considered another valuable element in a community disaster response and be provided with relevant disaster nursing continuing education. Strategies to address this problem may include policies that enable nonworking nurses to be activated in a disaster, activation mechanisms, and proactive strategies that connect those nurses to disaster education.

The majority of attendees in this study were emergency/critical care hospital nurses, followed by those in medical and surgical specialties. There were far fewer attendees from pediatric, obstetrics/gynecology, and

psychiatry specialties than from emergency/critical care and medical/surgical specialties. Nurses of all specialties should take responsibility in responding to all phases of disasters,[20] and in particular, those nursing specialties that provide care to vulnerable populations such as children, women, elderly, and people with psychological disorders.[21,22]

The attendance differences among those nursing specialties might be attributed to the media effect, which is disaster management messaging disseminated to the public. Media attention directs the public's and also nurses' attention to all phases of disasters. In Taiwan's previous major disaster experiences such as the 921 earthquake in 1991, the outbreak of severe acute respiratory syndrome in 2003, the Morakot typhoon in 2009, the Formosa Water Park dust explosion in 2015, and Tainan earthquake in 2016, emergency/critical care nurses worked mainly in the response phase of the disaster, which garnered most of the media and public attention. This situation might lead to twofold misperceptions by nurses regarding responding to disasters: first, that nurses' roles and functions in responding to disasters are only in the "response" phase of the disaster, and second, that the immediate nursing response to a disaster falls primarily to emergency/critical care nurses, who are often reported by the media in the "response" phase. The media does not pay as much attention to the "preparation" and "recovery" phases as it does to the "response" phase of a disaster. As a result, the roles and functions of other nursing specialties in the "preparation" and "recovery" phases of disaster may be ignored.

Aforementioned misperceptions in responding to disasters have been reflected in a Taiwanese study that many hospital nurses perceived emergency/critical care competency as the core competency that prepares nurses to "respond" to disasters.[23] Nursing competencies corresponding to the preparation and recovery phases of the disaster are often overlooked without recognizing that preparation, response, and recovery are indispensable elements in the disaster cycle. With less participation in disaster nursing education, nurses from other specialties might not have sufficient preparedness and competencies in responding to disasters. Thus, generic and specific courses for different nursing specialties that fulfill the needs of providing care to those vulnerable groups in all phases of disasters should be developed. Strategies that enhance the participation of different specialty nurses in disaster nursing continuing education should be considered a priority for nursing education development. Moreover, proactive measures should be taken to publicize the roles and functions of nurses in different workplaces and specialties in all phases of disasters.

Similar to nursing license renewal requirements of other countries, Taiwan requires 150 hours of continuing education with some requisite topics completed every 6 years. The 1817 attendees of continuing education in disaster nursing in 4 years were only a small fraction of the 153,194 nurses working in the nursing field. This outcome might be attributed to the fact that disaster nursing has never been listed as a requisite topic for continuing nursing education, and consequently, nurses might be less motivated to participate in continuing education for disaster nursing. Studies have indicated the effects of disaster education on enhancing nurses' awareness of and confidence in dealing with disaster relief[4] and disaster preparedness.[3] Thus extra efforts to promote disaster nursing as a requisite topic in continuing education are needed.

Implications for Emergency Nursing Practice

Our finding that large numbers of emergency/critical care nurses attended the disaster nursing courses suggests that the course filled an unmet need and that emergency nurses might advocate for similar course offerings in their settings, for both emergency and other nursing specialties. Emergency nurses have a vested interest in ensuring that the nursing community at large is well prepared to respond to major disasters. A common finding after many natural disasters is that individuals seek care in the emergency department when their health care needs could perhaps be better managed elsewhere—for example, the worried well, obstetric concerns, dialysis, medications refills, chronic ventilator care, and exacerbations of medical or psychiatric problems. This situation may result in increased crowding in often already overburdened emergency departments, unrealistic nursing workloads, and perhaps potentially less than optimal care for patients with complex care needs who are not normally treated in an emergency department.

Emergency nurses can play a major role in promoting continuing education in disaster nursing to and for other nursing specialties in order to facilitate better disaster management and care in the community, shelters, and homes. For example, it has been documented that psychiatric nurses can play a significant role in managing disasters. They can participate in local and regional emergency preparedness exercises, encourage clients and staff to have a personal disaster plan, and develop backup plans for communication and medication delivery.[22] The content of disaster nursing continuing education should be expanded to address all of the nursing specialties to enhance collaboration between emergency and other nursing specialties in different phases and settings of the disaster health care.

Conclusions

Whereas continuing education in disaster nursing has been carried out by nursing organizations in several countries,

such as Japan and Indonesia, Taiwan has only recently launched such education. In addition to educating nurses currently working in the nursing field, innovative strategies are needed that provide disaster nursing education to nurses who are not currently working in nursing. Disaster nursing education that is tailored to nurses working in different settings and specialties is needed as well to expand the spectrum of the nursing workforce that can respond effectively to a disaster. In addition, instruments used to measure the effectiveness of the continuing education in disaster nursing should be developed. Moreover, research is needed to explore factors influencing nurses' willingness to receive, and competencies cultivated by, disaster nursing education from educational, practical, and policy perspectives. Such research can guide discussion of the future direction of disaster nursing education in Taiwan and global nursing societies as well.

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