

Iranian nurses' perception of essential competences in disaster response: A qualitative study

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ABSTRACT

Background: Today disasters, natural and man-made, are a part of many people's lives. Iran has a long history of disaster events. Nurses are one of the most significant groups within Iranian disaster relief operations, providing immediate and longer term care for those affected by the disaster. However, the competence of Iranian nurses and their training for this work has received little attention. This paper presented the results of a study aimed to explore the context. **Materials and Methods:** A qualitative study was performed in 2012 in Iran. Interviews were conducted with 35 nurses. The sampling of participants was purposeful and continued until data saturation was achieved. Themes were identified using inductive qualitative content analysis. Trustworthiness of the study was supported considering auditability, neutrality, consistency, and transferability. **Findings:** Data analysis undertaken for the qualitative study resulted in the identification of five main themes included 1-management competences, 2- ethical and legal competences, 3-team working, 4-personal competences, and specific technical competences that presented in this report. **Conclusions:** This report presents an overview of nursing competences required for Iranian nurses in disaster relief. It is argued that additional competencies are required for nurses who care in high-risk situations, including disaster. Nurses need to prepare themselves more effectively to be responsible and effective in the nursing care.

Key words: Competences, disaster nursing, response phase

INTRODUCTION

In recent years, the impact of natural and man-made disasters has increased considerably around the world. Disaster events

have caused the death of on average 75,000 people annually, and 210 million people have been directly affected by these events in recent years. In 2011, Asia was most often hit by natural disasters and suffered 86.3% of worldwide reported disaster victims. According to the Center for the Epidemiology of Disaster (CRED) Report, on average, 1,376,263 persons in Iran were affected by natural disasters from 1980-2010.^[1] Iran is a disaster-prone country, in part, because of its geography and location. It is exposed to disasters including flood, earthquake, drought, and war. Therefore, improving the effective response to a disaster event is of great importance in this country.^[2]

There is no single agreed-upon definition of disaster,^[3] but the similar point in definitions from the International Strategy for Disaster Reduction (ISDR) and WHO is a serious disruption of the functioning of a community after natural or man-made events. In this condition, individuals

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lose the supporting material for life and the community needs extra resources to respond and cope.^[4,5] Disasters are unpredictable and uncontrollable, so extensive efforts should be made to minimize mortality, and it has direct relation with preparedness and competence of disaster team in response phase^[6]

Generally, nurses make up the largest component of disaster team, and the principal goal of them is to achieve the best possible level of health for individuals and communities affected by the disaster.^[7,8] The scientific reports from nurses' experiences demonstrate that they generally feel under-prepared and poorly equipped for disaster relief work.^[9] This may be due to the lack of training and relevant content in their pre-service education.^[10,11] For example, the results from a study about nurses' preparedness in Australia (2006) showed that the number of nurses that have enough preparedness, competence, and experience for disaster relief work are limited.^[12] In nursing education, competence-based education has priority because at the end, this education should be applicable.^[13]

Regarding the fact that nurses are the main member in a disaster team, they should be aware of gaps in their knowledge, skill, and ability to engage more effectively in relief operations.^[14] Hsu believed that current information about required competence for disaster response are not evidence-based.^[15] Chapman stated that most of nurses don't acquire required competences for disaster response and after participation in a disaster situation, they will understand that they need such competences.^[16]

There is limited research about nurses' roles and competences in emergency ward and disaster situation compared to published articles about the prevalence and significance of disasters.^[12]

However, despite the important role of nurses in response to the disasters, little information is available about technical skills or competencies that they need to participate effectively in these situations.^[17] Thus, competencies required for disaster nurses to effectively respond to disaster situations and to successfully participate in disaster response teams need to explore further.^[18,19]

Throughout the literature, it has been emphasized that the criteria for nurse competences should be based on the actual needs of the nursing role in work place.^[13,19] While the required competences for this role are based on predetermined subjective criteria not based on real workplace needs.^[20-22]

There is little information available about the required competences for a nurse responding to disaster events. One of the most important studies is ICN (2009) study about nurse roles in a disaster team. They provide a list of required competences. The researcher suggests at the end of the report that this competences insist on in-country discussions and

interpretations of the competencies according to medical challenges and prevalence of different types of disaster to ensure that they reflect the nation's needs and requirements for the disaster nursing workforce.^[3]

These issues and requirements are reflected in Iran where disaster nursing is poorly defined, required competencies have not been clearly stated, and training opportunities are scarce. Nurses receive little information about emergency and nursing care in these situations. Determination of these competences can be used for evaluation of underlying educational requirements that need to be considered in attempts to improve nurses' competences for disaster response. These competences could serve as a guide to design courses in order to prepare nurses for critical situations in Iran.

The main goal of this mixed methods study was to design a tool for evaluation of nurse competences for disaster response. The first part of this study was qualitative because there is few information about competences required for nurses when participate in disaster response.

A deeper recognition of these competences refers back to those who have the experience of care in a disaster situation and design the appropriate tool for evaluation of these competences.

MATERIALS AND METHODS

The research was part of a larger mixed methods study designed to develop nurses' competence evaluation tool in disaster relief. In the first step, the qualitative approach has been done for a deeper understanding of nurses' competences in disaster response. In the next step, the tool developed from extracted competences. Participants were 35 nurses with recent experiences of the medical response to disasters. Individual Interviews was performed between May 2012 and September 2012. The selection of participants was determined using a purposeful sampling method according to introduction of nursing office. Nurses were invited to participate in the study after a telephone conversation, during which they were told of the study's objectives.

The time and place of interviews were arranged according to the participant's preference. At the beginning of interviews, written informed consent was obtained from the participants. Data has been saturated after 30 semi-structured interviews and five more has been done to confirm categories. The interviews lasted about 40-100 minutes (mean 1 hour) and were recorded using a digital voice recorder.

Each interview began with the question, "Please tell me about your experience of providing care in disaster?" Nurses' responses were clarified and expanded upon by follow-up questions. The interviews were transcribed verbatim and analyzed using qualitative conventional content analysis method.

Data analysis

The data obtained were simultaneously processed using five-step method of Granheim and Lundman content analysis. The researcher listened to records and transcribed them word-for-word after developing a general idea. An analysis unit was established where the transcripts were read line-by-line, the important sentences and phrases were underlined, and the main ideas derived from them and labeled as codes.^[23] Overlapping codes were assimilated, and primary categorization of data was performed. Data reduction continued in all analysis units until main categories emerged.^[24] Then, the similar categories emerged and constructed main themes. Drawing conclusions from the coded data was the latest step that discovered characteristics and dimensions of the categories, the relationship between them,^[25] and a holistic view about the competence concept.^[25] The process of analysis stages for one category is provided here [Tables 1-3].

Two conceptual codes including “Identifying the causes of stress” and “Ability to control the causes of stress” has been emerged with similar codes, and then the sub-category “Psycho-emotional stress management” formed.

The main category “Disaster scene coordination” was formed from two subcategories, which includes “Psycho-emotional stress management” and “Scene safety.”

In the next step, the theme “Management of the nursing response” was formed from two main categories “Disaster scene coordination” and “Management of human and other resources.”

Data validation was performed through in-depth prolonged engagement with the data. Participants and expert supervisors

Table 1: Developing conceptual codes

Meaning unit	Conceptual code
A manager should notice that everyone is under stress ... they are under psycho-emotional stress, and try to identify what can cause stress in that situation, or aggravate it	Identifying the causes of stress Ability to control the causes of stress

Table 2: Developing sub-category from conceptual codes

Conceptual code	Sub-category
Identifying the causes of stress	Psycho-emotional stress management
Disaster intensity assessment	
Stress management of co-workers	
The ability to manage the psycho-emotional impact on casualties and others in the affected community	

Table 3: Developing main category from sub-category

Main category	Sub-category
Disaster scene coordination	Psycho-emotional stress management Scene safety

checking and maximum variation of sampling (in terms of age, years of experience in nursing, and exposure to working in different disaster relief situations) attested to credibility of the findings. In order to support the study conformability, parts of five transcripts and findings were shown to the participants to check out whether they were consistent with their real experiences and perceptions.

Recording and transcription of the seven participant’s interviews and 90% agreement among coding and classifying of the concepts by some expert nurses and academic members of Nursing Faculty who did not participate in the early stage of the research and were familiar to qualitative research were other critical strategies for achieving credibility during the research process.^[26]

Ethical considerations

The study was approved by the Ethics Committee at Isfahan University of Medical Sciences. Moreover, written permissions were signed from participants for recording interviews and participation in the study. For all subjects, it was made clear that they could withdraw from the study at any time. The raw data including transcripts was stored securely and was accessible only for the research team.

Findings

The mean age of the 35 participants was 37.5, and 30 of them were men. Participants had between 7 and 28 years of experience in nursing and at least one exposure to work in disaster relief. Findings of the study are related to the concept and different dimensions of nurse competences in a disaster that has been analyzed with conventional content analysis method. We reached to five final themes after analyzing the data. These five themes, main categories and their sub-categories are shown in Table 4.

Theme one: Management of the nursing response

The theme *management* competence was one of principal themes identified from data analysis. This theme included two main categories: (1) Disaster scene coordination and (2) Human and other resource management. According to participant experiences, a disaster nurse should have management competences for participation in disaster response because they have an important role in management of disaster response.

Disaster scene coordination

This category was one of the main categories of disaster management capability in the response phase. It is divided into two subcategories: “Psycho-emotional stress management” and “Scene safety.”

First, a manager should know what causes stress in staff. Then, assess individuals’ stress level and react to them based on their stress level Because stress is just like (a) virus; if you do not control it, everyone would be overtaken by it. I think identifying risk factors in the scene is of great importance. It is even beyond doing anything else. (Participant 1, worked 24 years as a healthcare manager).

Table 4: Themes, main categories, and sub-categories

Theme	Main category	Sub-category
Management of the nursing response	Disaster scene coordination	Psycho-emotional stress management Scene safety
	Management of human and other resources	Assessment of required human and other resources Operational coordination and management of resources
Legal and ethical performance in disastrous situations	Professional ethics in disaster	Ethical commitment Observing ethics
	Adherence to law in disaster	Familiarity with the legal requirements Observing requirements
Team work ability	Knowledge about duties and organizational hierarchy Unity of command	
Specific personal ability	Physical ability Self-management	Emotional self-control Adopting to conditions
	Meta competence Critical thinking ability Communication skills	Communication with other health profession Communication with patient
Technical competences	Specific knowledge	Basic knowledge in nursing Knowledge about the disaster Documentation of care Skill with tools and equipment Triage skill Ongoing assessment Disaster-specific treatment skills Physical care Psychological care
	Applying knowledge	

Human and other resources management

Human and other resources management is one of important nursing competences for disaster relief. This category is divided into two sub-categories: “Assessment of required human and other resources” and “Operational coordination and management of resources.”

... A nurse ... should have the skill to assess conditions ... have accurate assessments of available resources and facilities. Moreover, he/she should see what resources (are) needed to make a balance between these two. Accurate assessment is necessary for correct application of resources so you can identify that which kinds of facilities are needed. Another characteristic of an effective manager ... was that he/she ... should promptly review capabilities, experience of the nurses, and give them responsibilities based on their abilities. (Participant 3, 12 years experiences in disaster management).

Theme two: Ethical and legal competences in disaster response

Legal and ethical competences with two main categories were one of the important themes that emerged through data analyses.

Professional ethics

Professional ethics is one of the main classes of the legal and ethical competence theme in disaster situations. Participants mentioned this theme as sub-categories of “Moral commitment” and “Observing ethics.”

You must be morally committed and have a responsibility towards patient. It can be perceived whether the person do the work just to meet assignments or it is important to him/her. There are bunch of things you need to observe in the disaster scenes. We cannot justify ourselves that, because it is a disastrous situation, there is no need for patient's permission or explaining the actions that you are doing. It means that patient's right should be observed, and you should respect his/her characteristic and personality (Participant 6, worked 14 years as RN).

Adherence to law

In this study, based on participants' experiences, one of the purports which points nurse's competency for legal action in disastrous situation is adherence to law. Adherence to law is one of the competencies that influence person's performance. When disaster nurses be familiar with the rules and laws and sought to make them principles of his/her own actions, many problems could be prevented. This theme was introduced as the sub-category of “Familiarity with legal and illegals” and of “Observance of rules.”

There are invasive actions that a nurse cannot do. Legally, we have weakness; he/she should get to know them because we are not being supported. Honestly, we learned these things through work; we were not familiar with it at all. The nurse should be familiar with guidelines and protocols thoroughly. Obviously, a nurse should know to what extend he/she is free to act and what cases could cause legal problems for him/her. There are so

many times during care that you have to do something special, but when you find out that legally you are not allowed to do it on your own or you want to transfer the injured by yourself, you should not violate the rules. There might be so many cases like this, but in each nurse's action, there must be footprints of observing the rules (Participant 17, worked 19 years as emergency nurse)

Theme 3: Team work ability

This theme was one of the extracted themes related to nurse competences that divided into two main categories: "Knowledge about duties and organizational hierarchy" and "Unity of command." Participants believed that team work is an essential nursing competence that is very important to achieve the best result in disaster relief.

Knowledge about duties and organizational hierarchy

One of the main categories in team work ability was knowledge about duties and organizational hierarchy. Knowledge about nurse duties in disaster situations, familiarity with the position of other staffs and triage leader, knowledge about boundaries and responsibility of other team members in a disaster situation, familiarity with ICS, knowledge about unity of command, familiarity with different organizations that provide services in disaster, and perception of the importance of unity of command in disaster relief were the most important competences that has been extracted in this study.

P16: In disaster, some of duties are overwhelming. For example, police force might have interfered in Red Crescent work and make disorganization. All of these evidences show that our staffs aren't familiar with their responsibilities.

P1: Knowledge about duties, responsibilities, and restricts is very important, and nurses should be familiar with this boundaries.

Unity of command

According to the participants' experiences, unity of command was one of the competences that help nurse to give an effective care. Unity of command, coordination, and cooperation with leader- volunteers and other team members are essential skill for a nurse that is interested to work in a disaster team. Participants believed that saving life is the priority in the disaster scene, and the nurse can do the best in this field if has an adherence to their leader.

P1: We are a group. Many of our nurses do not have collaborative and teamwork skills at the scene in order to know whatever they do should be in consistent with what others do. It could not be as if that everyone behaves in his/her own way, they should have teamwork skills. In addition, they know that at the scene, they must follow leader's orders.

Theme 4: Specific personal ability

This theme was one of the extracted result about disaster nurse competence that divided into four sub-categories; "Physical ability," "Self-management," "Meta competence," and "Communication skills."

Physical ability

Insomnia, changes in eating habits, and working consecutive shifts without adequate rest are the most important things that a nurse in critical situations must be consistent with and be adapted with them. For many people, tolerance with work pressure and stress, working in harsh conditions, and physical ability to carry injured people is very difficult and sometimes, it makes a critical physical situation for care providers at the scene. This can leave negative impacts on their performance.

Self-management

According to the majority of participants, self-management is one of the important personal abilities in disaster scene. This category has two subcategories: "Emotional self-control" and "Adopting to conditions or flexibility."

P22: In the disaster scene, patients are the same as a hospital except that there is high load of patients and little facilities. In my opinion, if a person wants to do the same at the disaster scene that he/she does in the hospital, he/she will face problem.

Meta competence

Participants acknowledged that a competent disaster nurse must have the decision-making ability, fast action, autonomy, patience, holistic view for decision making, critical thinking, self-devotion, and self-esteem.

P32: The first thing I understood is that in an earthquake disaster situation, it was very important that the nurse be able to control him/herself. It means to gain some kind of confidence through work process in order to act upon the gained confidence on that situation.

Communication skills

According to all of the participants, communication skill is one of the important personal abilities for a disaster nurse. Communication between a nurse as a care provider and a victim as a surveillance is the requirement for nursing care. This concept has been mentioned by participants to have two sub categories: "Communication with other health profession" and "Communication with patient."

P23: A qualified nurse should be able to communicate with his/her colleagues and be able to communicate well with patients and with his/her relatives as well and justify them and give them information. Therefore, he/she should have rhetorical and talking skills.

P8: Communication with injured and their families: He/she should definitely be able to communicate with injured people and their families too. In fact, he/she should show them that he/she has enough information.

Through his/her communication with victims, the nurse must show them that he/she has enough information and really wants to help. In this way, by giving information about problems and treatment actions, the nurse show them that he/she understand their situation

Theme 5: Technical competence

This category is divided into two sub-categories: "Specific knowledge" and "Applying knowledge." Participants believed that nursing care is very important in disaster; therefore, nurse should be capable to provide care for victims in different conditions. According to participants, experience, knowledge, and technical competences are required for nurses who provide care in high-risk situations, including disaster.

Specific knowledge

The study findings show that disaster nurse should have basic knowledge and knowledge about the disaster. Participants emphasized that disaster nurses need specific knowledge about disaster to prepare themselves and to be more effective in a nursing care.

P2-1: A nurse who wants to go through the field of care in disaster at least should know what disaster is. What are the types of disaster? For example, what does natural disaster and artificial disaster consist of, what are the differences, and what complications each one may bring for individuals and what complications each one may cause for people.

Familiarity with life threats is important for triage victims and could help nurse in prioritize patients.

P3-37: A nurse who wants to do care in disaster scene should know life-threatening conditions like arrest or bleeding, otherwise he/she could not have the right prioritization for patient care.

Applying knowledge

According to all of the participants, applying knowledge is an important competence for a disaster nurse that includes seven sub-categories: "Documentation of care," "Skill with tools and equipment," "Triage skill," "Ongoing assessment," "Disaster-specific treatment skills," "Physical care," and "Psychological care,"

P9: It means that a nurse should know that he/she must use devices and tools in the ambulance, be familiar with them, and be able to use them.

P20: Assessing victim is too important that a nurse should do it good and fast. In fact, he/she should assess what actions are needed and which one is now of greater importance to be performed and act upon prioritization of needs of injured.

P30: Patient transfer and transport is extremely important; after Bam earthquake, we had spinal cord injuries more than other kind of injuries. Most of them would have been prevented if they were transported properly.

P28: We faced a phenomenon requiring urgent and emergency services, broad, especially mental health services and leading psychosocial interventions; we faced the fact that we had nothing and we cannot do anything... reactions that we call them shocks... affective and emotional numbness that occurs to people. They are

not even able to meet their basic needs, and it is very important that the nurse working with the injured in the scene care about this issue...

DISCUSSION

This qualitative study has described the competences required for nurses in disaster relief. Extracted categories highlight several important aspects of these competences. According to participant experiences, nurse management competence was one of the important competences for a disaster nurse that can be achieved through psycho-emotional stress management and scene safety.

Ardia Putra emphasizes the importance of psycho-emotional stress management and regards it as one of the important roles of general nurses in disaster management.^[27] Furthermore, Stanley et al. (2008) considered assessing the severity and psycho-emotional impact of the incident as critical capabilities of a nurse for scene stress management, and this conclusion corresponds with the results of our study.^[28] Another capability emphasized by participants was management of human and other resources that included two aspects: Assessing and operational coordination of required and available human and other resources. In fact, nurse management competence needs proper evaluation of available resources for maximum use of them locally and to identify necessary external sources of support.

Emergency Nurses Association emphasized on an effective human resource management. They established that one of the key capabilities of nurses in the relief phase is management and proper coordination of the nursing workforce.^[29] Legal and ethical practice of a nurse in a disaster was one of the extracted competences that include two aspects: Professional ethics and adherence to rules. Analysis showed that participants described ethical commitment and observing ethics as important competences for achieving professional ethics in disaster.

Similarly, Shahriari reported findings of a study, which was conducted in 2012 aimed to demonstrate moral values of nursing in Iran. Professional ethics was one of the concepts that were extracted from participants' talk. It includes concepts such as accepting responsibility and accountability for the taken actions.^[30]

Lankva's study with similar findings indicates that a qualified emergency nurse should be responsible personally and professionally. His/her professional actions and accepting responsibility are of great importance in emergencies.^[31] Canadian and American Nursing Association listed ethical codes for nurses, which are as following: Providing safe, sound, and ethical care, which accompany with observing ethics,^[32] and the patient's rights in disaster situations is a moral duty of nurses.^[33]

Based on the participant's experience, familiarity with the laws and regulations in disaster situations and adherence

to law are important in achieving legal competence. Ethical and legal competences should be complying with the rules related to providing care in disaster situations. Canadian Nursing Association has stated in its ethical codes list that nurses should be familiar with rules relating to the scope of care in disaster situations.^[32] Recent findings somewhat are similar to findings of Jorgensen's study in America in 2010. He has reported that infants and children's nurses should be familiar with important rules relating to the scope of care and to the scope of their activities in disaster situation.^[34] Jose in a study in America in 2010 demonstrated that it is essential to observe rules in disaster situations. Moreover, nurses should heed legal issues in decision-making in critical situations and comply with the rules related to providing care in disaster situations as well that are similar to cited competency by participants in the present study.^[35]

Comprehensive and effective care depends on the cooperation of individuals and teams who provide services in the disaster scene. Therefore, it is essential that nurses be familiar with job descriptions, system and hierarchies, and work as a team while maintaining unity of leadership in a disaster situation. Cannon-Bowers in a similar research in 1995 has shown proficient work skills in a disaster team as necessary competencies for the effective delivery of health services.^[36] Moreover, King in a research in 2010 has mentioned that skill of working as a team is tied to familiarity with team and coordinated activities in order to achieve goals. In addition, it has been mentioned as required competencies of nurses for being responsive to disaster,^[37] which is in agreement with the participants' experiences of the recent research. Furthermore, personal abilities have been mentioned as necessary competencies for a disaster nurse. Physical capabilities and his/her ability to have control over emotions at the scene could demonstrate him/her as a qualified nurse for the role of the disaster nurse. Yin in his research in 2011 pointed out those physical capabilities of individuals as one of the special abilities of the person, which is essential for care providers on the scene.^[38] Moreover, Hodge in his research in 2007 mentioned calm and emotional stability as important features for volunteer people who want to participate in critical situations and provide care.^[39]

Compliance with the conditions and possibilities in the scene are other parameters determining an individual's qualifications for the role of the disaster nurse. North (2002) and Coyle (2007) in their study have noted compliance with the conditions and possibilities as important characteristics for rescue team in the disaster scene, which is consistent with the mentioned competency by participants of the present research.^[40,41]

Interaction and dominance over communication skills are such important competencies of communication skills. In fact, besides the role of a facilitator in communicating with patients and cure team, it helps the individual to perform his/her role well as a disaster caregiver. The findings of the recent research are somehow similar to findings of King in

2010. He has reported that all nurses besides knowledge and skills must have a set of personal capabilities in order to be effective in a clinical practice. According to him, capability in communication skills was mentioned as one of the facilitator skills in professional communication with other team members and with care recipients, which is of great importance.^[37] Moreover and Leonard (2004) have concluded in their research that effective teamwork and professional communication are of great importance in care delivery,^[42] which is in agreement with experiences of participants of the present research.

Technical competency is another required competency of a disaster nurse, which accounted a huge amount of the obtained data in this research. Undoubtedly, scientific ability is an important component of a disaster nurse. Basic scientific knowledge, familiarity with disaster and its relevant actions, and practical ability form technical competencies for a nurse to work at disaster scene. Without having jurisdiction in these areas, providing effective care at the scene would not be possible.

Bridges has emphasized on the basic scientific information and knowledge for presence at the scene and has mentioned it as one of the underlying competencies.^[43] Considering the variety of injuries and related problems, skill in performing various procedures is very important for a disaster nurse. YIN in a research study in China mentioned that ability to perform procedures is an essential skill for nurses in disaster situations. The author stated that doing first aid and procedures properly could lead to achieving better results in delivery of services. Therefore, nurses as key members of cure team should be able to do this work well.^[38] For nurses, the alphabet of nursing care in critical situations is to carry out triage and transport injured properly. They believed that nurses should be able to assess and diagnose well. World Health Organization and the International Society of Nursing in 2009 have discussed different roles of nurses in disaster scene and mentioned having skills in triage as emergent actions. Triage skills are known to be very important as an immediate action in the disaster scene,^[3] which is in agreement with experiences of participants of the recent research on nurses' competencies in disaster. According to participants, emotional support and solidarity with the victims were as the art of nurses. In fact, nurses can play an important role as a psychiatric nurse in disaster. Denise in a similar research in 2010 in America describes that crises cause social and psycho-emotional dysfunction. Therefore, in this kind of situations, nurses besides having a caring role should play the role of a psychiatric nurse in providing emotional care.^[44]

Study limitations

The relatively small sample size limits the general applicability of the results. However, selection of the participants from different provinces, working backgrounds, and forms of disaster experiences assisted in ensuring that the findings are broadly applicable to the context of disaster nursing care in Iran.

CONCLUSION

Acquiring professional competency for providing care in disaster situations is an important issue in nursing profession. The current study examines the competencies required for nurses to provide better care in disaster situations. According to our findings, technical, management, ethical, and personal abilities are necessary for all nurses who are providing care. They should have some more skills as well in order to provide care in disaster effectively. Considering the importance of these competencies in disastrous situations, it seems necessary to put these trainings in academic curriculums and in nurses' service trainings as well. In this way, in critical situations when they are dealing with unpredictable challenges in disaster situations, they would have an appropriate performance. Recent findings could serve as a guide to design courses in order to prepare nurses for critical situations. Future studies can also be based on findings of this research study.

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REFERENCES

- Centre for Research on the Epidemiology of Disasters (2012). EM-DAT: OFDA/CRED. University Catholique. Brussels, Belgium. Available from: <http://www.cred.be>. [Last accessed on 2013 Feb 5].
- Ardalan A, Masoomi GR, Goya MM *et al.* Disaster Health Management: Iran's Progress and Challenges. *Iran J Public Health* 2009;38:93-7.
- World Health Organization and International Council of Nurse, ICN Framework of Disaster Nursing Competencies. Geneva: WHO; 2009.
- ISDR. (2004). Terminology: Basic terms of disaster risk reduction. Available from International Strategy for Disaster Reduction. Available from: <http://www.unisdr.org/eng/library/lib-terminology-enghome.htm>. [Last accessed on 2012 May 2].
- Gunn, SWA. Multilingual Dictionary of Disaster medicine and international relief. Boston, United States: Kluwer Academic Publisher Ltd;2002.
- Magnaye B, Lindsay S, Ann F. Muñoz M, Gilbert V. Muñoz R, Heather M. Muro J. The role, preparedness and management of nurses during disasters. *E-Int Sci Res J* 2011;3:269-4.
- Hassmiller S, Cozine M. Addressing the nurse shortage to improve the quality of patient care. *Health Aff (Millwood)* 2006;25:268-74.
- Jokiniemi K, Pietilä AM, Kylmä J, Haatainen K. Advanced nursing roles: A systematic review. *Nurs Health Sci* 2012;14:421-31.
- Fung O, Loke A, Lai C. Disaster preparedness among Hong Kong nurses. *J Adv Nurs* 2008;62:698-703.
- Polivka BJ, Stanley SA, Gordon D, Taulbee K, Kieffer G, McCorkle SM. Public health nursing competencies for public health surge events. *Public Health Nurs* 2008;25:159-65.
- Weiner E, Irwin M, Trangenstein P, Gordon J. Emergency preparedness curriculum in nursing schools in the United States. *Nurs Educ Perspect* 2005;26:334-9.
- Arbon P, Bobrowski C, Zeitz K, Hooper C, Williams J, Thitchener J. Australian nurses volunteering for the Sumatra-Andaman earthquake and tsunami of 2004: A review of experience and analysis of data collected by the Tsunami Volunteer Hotline. *Australas Emerg Nurs J* 2006;9:171-8.
- Ellström PE, Hultman G, editors. Learning and changes in organisations. About pedagogy in working life. Lund: Student literature;2004.
- Bergin A, Khosa B. Are we ready? Healthcare preparedness for catastrophic terrorism. *Aust Strateg Policy Inst* 2007;4:1-19.
- Hsu EB, Thomas TL, Bass EB, Whyne D, Kelen GD, Green GB. Healthcare worker competencies for disaster training. *BMC Med Educ* 2006;6:1-9.
- Chapman K, Arbon P. Are nurses ready? Disaster preparedness in the acute setting. *Australian Emerg Nurs J* 2008;11:135-44.
- Williams J, Nocera M, Casteel C. The effectiveness of disaster training for health care workers: A systematic review. *Ann Emerg Med* 2008;52:211-22.
- Al Khalaileh M, Bond AE, Beckstrand R, Al-Talafha A. The Disaster Preparedness Evaluation Tool: Psychometric testing of the Classical Arabic version *J Adv Nurs* 2010;66:664-72.
- Hammad KS, Arbon P, Gebbie KM. Emergency nurses and disaster response: An exploration of South Australian emergency nurses 'knowledge and perceptions of their roles in disaster response. *Australas Emerg Nurs J* 2011;14:87-9.
- Yang Y, Xiao L, Cheng H, Zhu J, Arbon P. Chinese nurses' experience in the Wenchuan earthquake relief. *Int Nurs Rev* 2010;57:217-23.
- Döös M. Connections at place of work-about learning and competences in relations in daily life. *Arbetsmarknad Arbetsliv* 2004;2:77-92.
- Huahua Y, Haiyan H, Arbon P, Jingci Z, Jing T, Zhang L. Optimal qualifications, staffing and scope of practice for first responder nurses in disaster. *J Clin Nurs* 2011;21:264-71.
- Kohlbacher F. The use of qualitative content analysis in case study research. *Forum Qual Soc Res* 2006;7:1-21.
- Granheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105-12.
- Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs* 2008;62:107-15.
- Streubert, H, Carpenter DR. Qualitative Research in Nursing: Advancing the humanistic imperative. Philadelphia: Lippincott Williams and Wilkins Publisher Ltd;2011.
- Putra A, Petpichetchian W, Maneewat K. Review: Public Health Nurses' Roles and Competencies in Disaster Management. *Nurse Media J Nurs* 2011;1:1-14.
- Stanley SA, Polivka BJ, Gordon D, Taulbee K, Kieffer G, McCorkle SM. The Explore Surge trail guide and hiking workshop: Discipline specific education for public health nurses. *Public Health Nurs* 2008;25:166-75.
- Emergency Nurses Association. Fundamentals of emergency management. Presented as part of the Key concepts in emergency department management program, Rosemont IL: FEMA publishing; 2008.
- Shahriari M, Mohammadi E, Abbaszadeh A, Bahrami M, Fooladi MM. Perceived ethical values by Iranian nurses. *Nurs Ethics* 2012; 19:30-44.
- Lankova A. The accountability of emergency nurse practioners. *Emerg Nurse* 2006;4:20-5.
- Nursing Practice Standards, The Canadian Nurses Association code of ethics for registered nurses. Ottawa, ON: Josey-Bass;2008.
- American nurse association (ANA). Know the Law/Ethics of Disaster Response. 2013. Available from: <http://www.nursingworld.org/MainMenuCategories/WorkplaceSafety/Healthy-Work-Environment/DPR/TheLawEthicsofDisasterResponse> [Last accessed on 2013 Feb 17].
- Jorgensen AM, Mendoza GJ, Henderson JL. Emergency Preparedness and Disaster Response Core Competency Set for Perinatal and Neonatal Nurses. *J Obstet Gynecol Neonatal Nurs* 2010;39:450-67.

35. Jose MM. Cultural, Ethical, and Spiritual competencies of health care providers responding to a catastrophic event. *Crit Care Nurs Clin North Am* 2010;22:455-64.
36. Cannon-Bowers JA, Tannenbaum SI, Salas E, Volpe C.E, Guzzo A. Defining competencies and establishing team training requirements. In: Guzzo RA, Salas E, and Associates, editors. *Josey-Bass, San Francisco, CA: Team Effectiveness and Decision-Making in Organizations*; 1995. p. 333-80.
37. King R, North C, Larkin G, Downs D, Klein K, Fowler R, *et al.* Attributes of effective disaster responders: Focus group discussions with key emergency response leaders. *Disaster Med Public Health Prep* 2010;4:332-8.
38. Yin H, He H, Arbon P, Zhu J. A survey of the practice of nurses' skills in Wenchuan earthquake disaster sites: Implications for disaster training. *J Adv Nurs* 2011;67:2231-8.
39. Hodge J, Pepe R, Henning W. Voluntarism in the wake of Hurricane Katrina: The uniform emergency volunteer health practitioners Act. *Disaster Med Public Health Prep* 2007;1:44-50.
40. North CS, Tivis L, McMillen JC, Pfefferbaum B, Cox J, Spitznagel EL, *et al.* Coping, functioning, and adjustment of rescue workers after the Oklahoma City bombing. *J Trauma Stress* 2002;15:171-5.
41. Coyle G, Sapnas K, Ward-Presson K. Dealing with disaster. *Nurs Manag* 2007;38:24-30.
42. Leonard M, Graham S, Bonacum D. The human factor: The critical importance of effective teamwork and communication in providing safe care. *Qual Saf Health Care* 2004;13:85-90.
43. Bridges EJ, Schmelz J, Kelley PW. Military nursing research: Translation to disaster response and day-to-day critical care nursing. *Crit Care Nurs Clin North Am* 2008;20:121-31.
44. Denise DF, Marirose B, Schaubhut R, Mathews P. Experiences of nurse leaders surviving Hurricane Katrina, New Orleans, Louisiana, USA. *Nurs Health Sci* 2010;12:9-13.

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