JAPAN JOURNAL OF
NURSING SCIENCE

Japan Journal of Nursing Science (2016) **13,** 55–64 doi:10.1111/jjns.12086

ORIGINAL ARTICLE

Emergency nurses' experience of crisis: A qualitative study

Parvaneh VASLI[1] and Nahid DEHGHAN-NAYERI[2]

[1]School of Nursing and Midwifery, TUMS (Tehran University of Medical Sciences) and School of Nursing and Midwifery, SBMU (Shahid Beheshti University of Medical Sciences), and [2]Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Abstract

Aim: A crisis is an environment created in a rapidly changing and chaotic work setting which is found in a busy emergency department of a hospital with higher intensity. The objective of this study was to define and explore emergency room nurses' description of crisis in critical situations and to identify barriers and mitigating factors that affect how nurses handle crises.

Methods: This study is a qualitative research with a content analysis approach. Eighteen emergency nurses were purposefully selected to take part in this study. Data collection was through face-to-face semistructured interviews until data saturation was finalized. Data analysis was conducted using content analysis.

Results: The data analysis consisted of four main categories: (i) loss of balance; (ii) crisis control (anticipation–preparation, resource control, control skills, and supporting nurses); (iii) human factors related to staff (sufficient staff, competent staff, individual characteristics, ability to communicate); and (iv) teamwork (cooperation and reciprocal trust).

Conclusion: Findings showed the meaning of the crisis and challenges and issues faced by emergency nurses throughout the crisis. Health services authorities can use these results to make comprehensive plans in order to reduce emergency crises.

Key words: crisis, emergency department, Iran, nurse.

Introduction

A crisis is an undesirable event or outcome, which includes the element of surprise or disruption of action and is a threat to the resources and well-being of an individual within the organization (James & Gilliland, 2012). A crisis can have negative consequences such as increased risk of death, delay in treatment, patients leaving the hospital against advice, ignoring medical advice, and putting nurses under pressure Healthcare providers acknowledge that the issues underlying the crises are deep and widespread (Lyneham, Cloughessy, & Martin, 2008).

Correspondence: Nahid Dehghan-Nayeri, Nursing and Midwifery Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tohid Square, Tehran, Iran. Email: nahid.nayeri@gmail.com

Received 17 May 2014; accepted 23 April 2015.

The emergency department (ED) is a dynamic and potentially hazardous patient care environment (Hicks, Kiss, Bandiera, & Denny, 2012), where patient volume, involuntary admissions, types, and activities rapidly change. These changes have a strong effect on patients, their families, and healthcare workers (Ruchlewska *et al*., 2014), and as a result, a crisis can easily spread in ED. The finding of a qualitative study conducted in 2010 in a university hospital ED in Iran showed that a critical situation is one of the major barriers of providing optimal care (Mahmoudi, Mohammadi, & Ebadi, 2013). According to a study by Esmaeilpour, Salsali, and Ahmadi (2011) carried out in 11 ED of teaching hospitals in Tehran (the capital of Iran), nearly 20–92% of nurses in ED had faced physical and verbal abuse.

BACKGROUND

A crisis, which is an environment created in a rapidly changing and chaotic work setting, can be found with

higher intensity in a busy ED of a hospital (Still, 2008). In this setting, a crisis is a dilemma that requires immediate attention to preserve services (Harrison & Ferguson, 2011). Iranian ED are not exempt from crisis situations. With a population of over 70 million people, Iran is the sixth most disaster-prone country in the world because of its geographical and climatic diversity (Alizadeh, Airemloo, Alizadeh, Shakibi, & Aliloo, 2010).

Road traffic accidents are also one of the major causes of death in Iran (Khorasani-Zavareh *et al*., 2009). The results of a study, conducted in hospitals affiliated with Shahid Beheshti University of Medical Sciences as one of the mother universities in 2012, showed that one fourth of the clients referring to ED had car accidents (Abdolvand *et al*., 2014).

In addition, air pollution has always been a problem in Tehran and other big cities. Tehran, the capital of Iran, is one of the most air polluted cities in the world. It is obvious that the pollution in the air may cause or aggravate many respiratory and cardiac disorders (Nabavi *et al*., 2012). In winter 2013, ED of hospitals in Tehran had a 35% increase in patient admission because of air pollution (Young Journalist Club, 2013). Overcrowding, on the other hand, is another problem in ED (Islamic Republic News Agency (IRNA), 2014), which could be because of different reasons such as lack of adequate healthcare facilities in smaller cities, resulting in many patients being referred to big city hospitals (Tehran Tehran Press, 2014) and low-cost healthcare services in teaching hospitals (Mahmoudi *et al*., 2013). Based on a qualitative study, conducted by Farahmand, Farnia, Momeni, Saeedi, and Sheikh Motahar Vahedi (2013), to investigate the experiences of emergency medicine professionals in 2013, crowdedness and high number of patients were reported as one of the causes for emergency medicine professionals' dissatisfaction. ED in Iran do not have the capacity to handle all of these patients (Hatamabadi & Alimohammadi, 2008).

Some published work show that ED in Iran also face some internal problems. For example, Rahmani, Arab, Akbari, and Zaarei (2007) suggested that the structure in most of the hospitals is far from an ideal situation; patient care is occasionally inadequate, experience of professional staff (nurses and doctors) is limited, supporting services are insufficient, and good-quality equipment is often not available. According to Mahmoudi, Mohammadi, and Ebadi (2012) study of emergency nurses' experience in Iran, insufficient number of nurses, lack of experience in some staff, inappropriate physical structure, lack of support for nurses, poor control and inappropriate supervision were the principle problems in ED. Based on the Iranian Nursing Council (2014), Iranian hospitals require three times the nursing staff than the current population to resolve the shortage. Moreover, another news source indicated that ED in Iran require 4000 nurses (Khabaryab, 2012).

Often, because of overcrowding and the lack of adequate facility for the treatment and care of critical patients, stretchers are used to accommodate patients, and as a result, more patients are assigned to each ED staff member. Furthermore, because of bed limitations in critical and general wards, the patients remain on stretchers for a longer duration (Hatamabadi & Alimohammadi, 2008). In addition, the Ministry of Health law requires ED to accept and treat patients regardless of the circumstances, at least until they can be transferred to other hospitals, which adds to the shortage of nursing staff and overcrowding in ED (Rahmani *et al*., 2007). It must be noted that not only the number of staff but also their expertise is one of the important needs of ED. Although emergency medicine specialists in Iran are trained for several years (Afzalimoghaddam, Hoseinidavarani, & Hossein-Nejad, 2011), there is still a lack of specialized emergency nursing care, and ED recruit general nursing staff to meet their needs.

These issues along with the lack of crisis management lead to more crises in ED. In support of this claim, the finding of a previous study indicated that, in most cases, the standard of crisis management in the military hospitals of Tehran has been low (Atashzadeh Shoorideh & Heidarizadeh, 2012).

In initial evaluation of the hospitals, the present authors found that hospitals, particularly ED, face many crises. Nurses constantly experience these critical situations and must be able to cope with them. According Bruce and Suserud (2005), nurses must be prepared to monitor and respond to health issues before, during, and after a crisis. Furthermore, knowing how the ED nursing staff manage patients (Olivia, Claudia, & Yuen, 2009) and what they consider as working pressure can improve the quality of care in ED (Hu, Chen, Chiu, Shen, & Chang, 2010). An important resource for the preparation of nurses to deal with a crisis is to know about other nurses' experiences in similar situations. This could help in gaining a perspective to understand the different ways of managing critical situations as well as the needs and problems among emergency nursing staff.

However, despite the importance of the nurses' role in crisis management, the present authors could not find another research on the nurses' experience in a critical

situation. According to Speziale, Streubert, and Carpenter (2011), qualitative research provides the opportunity to develop nursing knowledge through meaningful experiences of individuals. As crisis is the person's perception of and response to the situation (Roberts, 2000), qualitative research has been applied in the present study to explore the meaning of crisis from nurses' viewpoints and experiences.

OBJECTIVE

The objective of this study was to define and explore ER nurses' descriptions of crisis in critical situations and to identify barriers and mitigating factors that affect how nurses handle crisis.

METHODS

Data collection

A qualitative study, using content analysis, was undertaken. Semistructured interviews were carried out with 18 emergency nurses in two ED between November 2012 and September 2013. Overall, nearly 80 nurses worked in the two hospitals. The inclusion criterion was at least 1 year of work experience in the ED providing services to severely injured and traumatic patients. All participants had 3–12 years of experience in a public emergency or trauma department and all of them were female. All of the semistructured interviews were conducted with the participants by the main researcher in a private room.

Interview sessions took 45–90 min, averaging 1 h, depending on the participant's tolerance and their level of interest in describing their experiences. Interview guide questions are presented in the Appendix.

Data analysis

Qualitative content analysis was used for analyzing data. Content analysis is a research method for making replicable and valid inferences from the data to their context, with the purpose of providing knowledge, new insights, a representation of facts, and a practical guide to action (Elo & Kyngäs, 2008). It is a flexible method for analyzing textual data that can be conducted with a qualitative and quantitative approach (Hsieh & Shannon, 2005).

The conventional content analysis method aims to describe a phenomenon of which there is limited knowledge or published work. In this approach, researchers avoid the use of predefined categories, and instead allow the categories and their names to emerge from the data. This kind of analysis consists of three steps: (i) open coding; (ii) creating categories; and (iii) abstraction (Elo & Kyngäs, 2008).

The interviews were audio-recorded and transcribed verbatim, and analyzed concurrently with data collection through a conventional content analysis method. Data analysis starts with reading all data repeatedly and word by word to achieve immersion and to derive the codes by first highlighting the exact words from the text. As this process continues, labels for codes emerge. Codes then are sorted into categories based on how they are related and linked. These emergent categories are used to organize and group the codes into meaningful clusters. Next, definitions for each category, subcategory, and code are developed. The advantage of the conventional approach to content analysis is gaining direct information from study participants without imposing preconceived categories or theoretical perspectives (Hsieh & Shannon, 2005).

All these steps were taken for the current study. Coding was performed after each interview.

First, the interview text was read several times to achieve an overall understanding. Then, a name was given to each section of the text and it was written in the margins. The names were grouped later in different categories. Similar categories were put together into larger categories. Each category was given a name. This process was performed as much as reasonably possible in order to form more comprehensive categories that could include all aspects of the study subject. Four categories eventually emerged. Data was analyzed by both researchers and they discussed the findings if there were difficulties in achieving a unified view.

Data collection was considered saturated when no more categories emerged. Credibility was established through member and peer checking, and prolonged engagement (Speziale *et al*., 2011). The researchers tried to add credibility to the study by allocating sufficient time for investigation and following the step-by-step process of data analysis. There was also an attempt to increase the data accuracy by creating an atmosphere of intimacy and trust and good communication with the interviewees. Five participants were asked to review the study findings (categories and subcategories) and see if they were clear and well-matched to their personal experience. Four of them agreed with the findings. Further, two experts approved of the accuracy of data analysis and extraction of categories. Maximum variation of sampling also enhanced the conformability and credibility of the data.

Ethical considerations

This study was approved by the ethical review boards at the authors' institutions. Permission from the university ethics committee, attaining an informed consent prior to the interviews, data confidentiality, participants' right to withdraw from the study at any time, and the confidentiality of their data were all carefully implemented for ethical considerations.

RESULTS

The experiences of emergency nurses in a crisis are provided in Table 1. Four categories with their subcategories were extracted, including loss of balance, crisis control, factors related to staff, and teamwork, which are discussed in detail in the following.

Loss of balance

The first category obtained in the present study is "loss of balance" that has been considered as a definition of a crisis, and has three subcategories: (i) unpredictability; (ii) crowding; and (iii) chaos. In other words, a crisis has these three features.

Unpredictability

The first feature of a crisis is unpredictability. The participants stated that the crisis usually occurs unpredictably and surprises them. One participant said:

> For example, a few years ago, a factory was on fire near the hospital, and a lot of victims were referred to this hospital. We were shocked and not able to manage the patients. Such events which happen unpredictably and we are not ready to manage them, are a crisis for us.

Table 1 Categories and subcategories extracted from nurses' experience of crisis in the emergency department

A.	Loss of balance
	Unpredictability
	Crowding
	Chaos
B.	Crisis control
	Preparation
	Resource control
	Control skills
	Supporting nurses (emotional, finance–welfare, and legal)
C.	Factors related to staff
	Sufficient staff
	Competent staff
	Individual characteristics
	Ability to communicate
D.	Teamwork
	Cooperation
	Reciprocal trust

Crowding

A participant mentioned that crowding in the ED is a sort of imbalance:

> We have already had more disastrous crises like the earthquake in Bam which lasted longer, but have often faced a minor crisis. For example, Friday evening, 12 (emergency medical service) patients were referred to the hospital. These are all crises for us. In case of a crisis, our shifts are overcrowded. . . .

Chaos

Participants also believed that the situation is not normal in a crisis. One of participants who had 8 years of experience explained:

> In a crisis, the ED situation is changed to something different from the routine. There is chaos and more physicians, nurses, and logistic forces are needed.

Some participants indicated that sometimes a chaotic situation as another form of loss of balance could occur due to entrance of aggressive patients or their anxious families in the ED. In this relation, participant 12 said:

> Once, they brought us a dead child. We immediately administrated CPR, but the child was expired . . . when I told his family we could not do anything more, they attacked us shouting "we want to take the child away as you cannot do anything". This was a crisis. They wanted to take the expired child . . . that time was a very critical moment as there was a chaos in the whole ED.

Crisis control

Crisis control is the second category derived from the study with four subcategories: (i) preparation; (ii) resource control; (iii) control skills; and (iv) support. These categories show that ED should be prepared for a crisis and that it should then be managed quickly and skillfully.

Preparation

All participants emphasized crisis control and its importance and believed that it was essential to control the situation. Thus, they also indicated the importance of preparation. They believed that being relatively prepared greatly helped in crisis control. Some of them stated that many crises occur or develop due to lack of anticipation and preparation. A participant who was a head nurse stated:

> For some events, we think of solutions. For example, if the lights go out, we know how to discharge the patients, or in case of a fire or an earthquake, we have another building available which can be equipped with some beds. Our staff are also on alert, but there were some events, which were either unpredictable or we could not predict them well. Well in this way it was harder to control the situation.

Resource control

Based on participants, in addition to preparation, efficient control necessitates good resource control in physical structure, and quantity and quality of facilities such as hospital beds both in the ED and other wards, equipment, and medications. In the following, each of the above-mentioned factors will be discussed as the resources needed for crisis control.

With regard to physical structure of the ward as one of the resources for crisis control, a participant said:

> One of the advantages of our ED ward is its clear sections. Patients are transferred to the acute admission unit in ward 1 after triage. This is an advantage for this ED . . . although it is rather small, compared with the number of our admissions. This sometimes causes a crisis. I think the space and physical structure of the ward is important.

With regard to the role of quantity and quality of existing equipment in crisis control, and especially number of existing beds, one of participants said:

> If there are not enough beds to hospitalize the patients in the ED, or the beds are occupied in other wards and we cannot transfer the patients, the number of the patients grows higher . . . In this way, the work in each shift is highly increased. In such times, we have to add extra beds in the ED after making the necessary coordination with the supervisor. . . .

Control skills

Participants also stated that efficient control requires the staff's ability in application of control skills such as planning and coordination, monitoring and control, interpersonal interaction, time management, and organizational skills. In this regard, a participant who was a head nurse in the shifts said:

> I personally try to keep calm in a crisis. I consider priorities and assign the staff their tasks. I tell them what I expect from them. I supervise my personnel more when doing their tasks. I even sometimes change my personnel's tasks. I try to keep in touch with the supervisors more and exchange information with them not only to avoid legal issues but to get the stuff I need as well.

Support

The final subcategory of crisis control was supporting nurses and their performance in critical conditions. Based on the findings, support can be in emotional, financial–welfare, and legal forms. Most participants referred to one of three above-mentioned types of support and emphasized that ED nurses are motivated if they are supported. They also expressed several complaints, related to financial–welfare support. One assistant head nurse as participant 15 said:

> . . . if we receive enough financial–welfare support, we can do anything. As long as we are respected and cared for like doctors, we are able to do many things.

One participant said:

> For example, in one of the crises we had a few years ago, they ordered us to increase staff's shifts. Then, they did not pay anything for the overwork, for example a day off work or a day's leave. There was no financial reward either. In the best condition, a letter of appreciation was given to the staff. They clearly had no motivation to work!

With regard to legal support, one participant said:

> Now, we do the tasks, which are not legally in our job description. If there is a problem, we are guilty, but at the time of patients' need, we have to save their life and we have to take the risk. If there is a problem, the authorities will not support us.

Factors related to staff

Factors related to staff, as the third category, has four subcategories: (i) sufficient staff; (ii) competent staff; (iii) individual characteristics; and (iv) ability to communicate. This category and its subcategories show that in order to deal with the crisis, it is necessary to have sufficient and qualified staff.

Sufficient staff

The first part of factors related to staff is having enough staff. In relation to these subcategories, one of participants stated:

> One of our basic problems is shortage of human resources in case of a crisis. Sometimes our existing manpower force may not overcome the tasks although we try to do most of the tasks ourselves. If we cannot afford the situation, the supervisors give us extra forces.

Competent staff

The second subcategory is competent staff. According to participants, if the staff are competent, they can quickly manage the patients without any stress. For instance, one nurse mentioned:

> I was stressed during my first year, but now I feel more in control and I know what to do. Sometimes we are even more experienced than doctors. Experience is crucial in dealing with a crisis, and it will be a lot more helpful if it is combined with education.

Individual characteristics

Participants believed that having enough competencies is necessary, but it is not enough, and staff should have some individual characteristics such as being interested in working in the ED, feeling accountability, having physical strength, and being self-possessed. A nurse with 12 years of experience in the ED explained individual characteristics:

> Not everybody can handle critical situations. Lots of nurses tried, but they could not cope and left after a while. Dealing with a crisis needs experience, and also depends on personal character. Nurses should be able to realize the priorities in their tasks and have a composed character.

Ability to communicate

The last subcategory of factors related to staff is the ability to communicate well. In this regard, one participant said:

> I have experienced that if I treat patients badly, they become agitated and these kinds of negative feelings are spread quickly to other patients. As a result, the whole ward becomes loud and stressed.

Teamwork

Teamwork is the fourth category derived from the study. This category had two subcategories: (i) collaboration; and (ii) reciprocal trust. When a crisis occurs in the ED, the whole medical staff get involved, and therefore this situation should be controlled by the cooperation of and trust between all health team members through a good interpersonal interaction among all staff.

Collaboration

Without effective interaction and collaboration, the members cannot achieve efficient teamwork. In relation to cooperation as a subcategory for teamwork, a participant said:

> If doctors' and nurses' views on an issue are close, we will do things better because we are a team . . . When we work as a team, issues like lack of equipment is not as disrupting as usual . . .

Reciprocal trust

In relation to reciprocal trust participant 16 stated:

> If I personally work with a physician whom I trust, and I know he/she can manage the patients and does not make me stressed, I feel much calmer, and the tasks in the ward are administrated well. Meanwhile, working with some physicians is a pain!

Overview of findings

With regard to the aforementioned issues, it can be concluded that nurses indicated some important categories in the expression of their experiences. The first was the description of a crisis in their mind, and they mentioned that as an imbalance in the ED. They believed that an imbalance manifests itself in the form of unpredictability, crowding, and chaos, and can be caused by internal or external factors. They also emphasized the necessity of appropriate resources of equipment, facilities, and physical structure, as well as application of managerial skills by the staff, especially head nurses, and financial–welfare, emotional, and legal support in control of such situations.

Based on participants' statements, consideration of factors related to staff in the form of use of adequate and competent staff together with empowerment of teamwork can also help control such situations. It should be noted that, in fact, factors related to staff and teamwork can be also considered as subcategories of crisis control, but due to their great importance in the issue of crisis, they were investigated as separate categories.

DISCUSSION

This qualitative study explored the experiences of nurses in an emergency crisis. The most significant findings were "loss of balance" in the meaning of a crisis, "crisis control", "factors related to staff", and "teamwork".

As mentioned earlier, there are numerous problems that ED in Iran face, including difficult working conditions and hospital overcrowding, which result in nurses' lack of interest in working in ED. A qualitative study in a university hospital ED in Tehran showed that functional weakness of nurses caused by fatigue, indifferent attitude, and ineffective triage inhibited the nurses from providing effective and beneficial care in ED. A look at the first category of the data (loss of balance) shows that the participants consider a crisis equal to imbalance and a change in their daily tasks, which is consistent with the definition suggested by Boin and McConnell (2007, p. 51). They believe that a crisis means "a breakdown of familiar symbolic frameworks that legitimizes the pre-existing situation order".

In the above-mentioned definition, there is an emphasis on breaking down the familiar symbolic frameworks,

which can be interpreted as the daily tasks in the ED. Participants' statements showed that the imbalance in the ED has three features of unpredictability, crowding, and chaos. A review on the suggested definitions in the published work shows that each of these mentioned features can be separately found in these definitions. For instance, Coombs and Holladay (2010) point out the unpredictability of a crisis and state that a crisis is facing an unpredictable event, which threatens the benefits of the stakeholders and can seriously affect the function of an organization. The Merriam-Webster Online dictionary (2014) has emphasized the existence of chaos in a crisis in the related definition.

Based on this dictionary, a crisis is a difficult and unstable condition, which needs an absolute change. Among other important features of a crisis is crowding and sudden rush of the patients to the ED (Moskop, Sklar, Geiderman, Schears, & Bookman, 2009).

Another important finding of this study that covers the other categories is crisis management, which has four subcategories: crisis anticipation and preparation; having sufficient resources; using control skills; and finally, emotional, financial–welfare, and legal support.

Because other studies only mentioned crisis control generally and none of them considered it especially in the ED, these findings are specific and important. For example, a descriptive research in Turkey considered nursing managers' activities for coping with crises generally and only in hospitals, not in the ED (Karabacak, Ozturk, & Bahcecik, 2011). However, in the current study, participants mentioned important issues about inadequate anticipation and preparedness, insufficient physical infrastructure, inadequate and unsafe facilities, shortage of beds in the ED, lack of medication, and lack of supporting staff in the ED crisis situations. In fact, one of the ways to prepare the staff is holding educational courses and maneuvers as Chapman and Arbon (2008) stated that training and education are long accepted by researchers in a crisis response as an essential part of preparedness.

Meanwhile, the results of some studies conducted in Iran showed that holding maneuvers and educational courses in relation to crisis control has been poor (Mastaneh, Lotfollah, Jahangir, Doost, & Eshghi, 2011). This reveals that more emphasis should be paid to this part of crisis control. Other findings related to crisis control and existing shortages in fields of resources, facilities, and equipment are in line with the studies conducted in Iran. For example, the result of a study in hospitals in Tehran (the capital of Iran) showed that these hospitals had a moderate level of equipment, human resources, physical structure, and protocols (Hojat, Sirati-Nir, Khaghanizade, & Karimi Zarchi, 2008). Also, Rahmani, Arab, Akbari and Zaarei (2007) showed that the ED of hospitals affiliated with Tehran University of Medical Sciences, as the largest medical university in Iran, do not meet the minimum standards for facilities, equipment, and space.

There is a similar situation in many countries reported in other studies. For instance, Hoot and Aronsky (2008) said that shortages of treatment areas, inpatient boarding, and hospital beds are the common output factors that may cause crowding. Another finding, which was mentioned as essential in crisis control based on participants' viewpoints, is application of control skills at the time of a crisis occurrence.

Pierre, Hofinger, Buerschaper, and Robert (2011) considered control as a non-technical skill because it is not directly related to technical expertise, but is crucial for delivering safe and high-quality medical care. Some of these skills embody leadership, communication, and cognitive skills such as situation awareness, planning, decision-making, and task management. These issues are almost the same skills indicated by the participants in the present study.

The final subcategory of crisis control was financial–welfare, emotional, and legal support of nurses, especially during a crisis. This finding is consistent with Laposa, Alden, and Fullerton (2003) who found that ED personnel who participated in their research claimed not to have received adequate support from hospital administrators during the majority of traumatic events. AbuAlRub (2010) found that receiving support from colleagues can reduce stress in nurses and that receiving support from colleagues, supervisors, and families can prevent nurses from leaving their jobs. Drach-Zahavy's (2004) results were in line with this finding and found that receiving support from supervisors and managers impressively improved nurses' performance. Generally, based on the published work on if work is excessive, high demands and lack of support cause deteriorated emotional and mental health of nurses, and the resultant stress and burnout lead to greater turnover intent (Hayes, O'Brien-Pallas, & Duffield, 2012).

Another important finding was factors related to staff. It emphasizes the need for sufficient and competent staff who are able to communicate well. One of the most important problems in crisis control was shortage of human resources. The value of these resources and their impact on the quality of care has been the focus of several studies, most of which have emphasized the importance of human resources.

This issue is especially significant in an ED, as lack of nursing staff in ED could, on its own, cause a crisis (Kellermann, 2006). A systematic review by Hoot and Aronsky (2008) showed that inadequate staffing is a common throughput factor that may cause crowding in the ED. Zarea, Negarandeh, Dehghan-Nayeri, and Rezaei-Adaryani (2009) stated that at least 110,000 more nurses are required in order to reach the optimal level of nursing staff in Iran.

In addition to staffing, competency is also important. The result of McCarthy, Cornally, Mahoney, and White (2013) demonstrated that competency of emergency nurses, that includes physiological assessment, triage, and planning patient care, are key activities for optimal care. Rahmani *et al*. (2007) showed that some hospitals in Iran hire incompetent and inexperienced nursing and medical staff. Improving the performance of emergency nursing staff has been acknowledged by the World Health Organization (WHO) as an important factor in order to enhance and achieve standards of care. The WHO has proposed that ED only employ highly qualified and competent nurses (Alizadeh *et al*., 2010).

The last subcategory for factors related to staff was ability to communicate. Ability to communicate in the emergency medicine environment is crucial to patient care and departmental management (Carne, Kennedy, & Gray, 2011). The need for communication really arises in situations that involve many different responders and unexpected situations for which there are no established procedures (Netten & Someren, 2011). Cultural factors also play a part in ability to communicate. Issues, such as the effect of sex, individualism–collectivism, and uncertainty avoidance, can vary greatly among cultures (Carne *et al*., 2011).

Other important findings emphasize the necessity of cooperation and teamwork in the ED, in particular, during a crisis. According to participants, when the staff work as a team and cooperate with each other, issues like lack of equipment are not as disruptive as usual. In the ED, effective patient care depends on the interaction of emergency physicians, emergency nurses, and other health professionals. If any one of these interdependent components is performing poorly or is overwhelmed, delivery of care in the ED will suffer (Moskop *et al*., 2009). More recent research has highlighted important elements of effective teamwork (Carne *et al*., 2011). For example, the findings of a systematic review identified that in the ED, teamwork can improve patients' and employees' satisfaction, reduce clinical errors, and increase patient safety (Kilner & Sheppard, 2010). Williams *et al*. (2012) also showed that teamwork is a critical matter in providing intensive care.

Limitation

As the present authors used a qualitative approach, their findings may not be generalized. The present authors also assessed the experiences of the staff in ED, but other groups such as pre-hospital emergency team also have important effects on a crisis and its control. Therefore, conducting a similar study for pre-hospital staff could also yield valuable results.

CONCLUSION

Based on the results, preparing emergency nurses for a crisis by theoretical, practical and psychological education is very important and this preparation should be from university education to continuous education. In addition, organizing training courses and workshops, simulations and maneuvers can help employees' preparation. If there is preparation for crises, they can be prevented or controlled, so managers have to recognize them based on their already learned lessons and prepare hospitals and staff to confront them. The prerequisites for this deal include providing adequate and competent staff, appropriate physical infrastructure, and adequate facilities such as sufficient beds, enough and appropriate equipment and medications, and emotional, financial–welfare, and legal support. In addition, the managers have to encourage teamwork and cooperation.

NURSING IMPLICATION

With regard to the importance and effectiveness of the crisis on quality of care, it can be mentioned that planning to prevent and cope with a crisis is an essential and inevitable issue. Based on the present authors' obtained results, interventions such as provision of adequate human resources, especially efficient nurses who are interested in working in ED, periodical education to empower nurses working in ED, training emergency professional nurses, giving emotional, legal, and welfare support, as well as empowerment of teamwork culture among emergency staff, especially nurses and physicians, can be helpful in achieving such a goal.

DECLARATION

No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTIONS

Study design and interpretation, and supervision of the research project was performed by N. D. N.; study design, data gathering and analysis, and writing of the manuscript was performed by P. V.

REFERENCES

Abdolvand, M., Bahadori Monfared, I., Khodakarim, S., Farsar, A. R., Gol Mohammadi, A. & Safaie, A. (2014). Status victims of accident in Shahid Beheshti Medical Siences hospitals in 2012. *Journal of Injury Prevention and Safety Promotion*, *1*, 65–72 (in Persian).

AbuAlRub, R. F. (2010). Work and non-work social support and intent to stay at work among Jordanian hospital nurses. *International Nursing Review*, *57*, 195–201.

Afzalimoghaddam, M., Hoseinidavarani, H. & Hossein-Nejad, H. (2011). Evaluating the impact of emergency medicine education on medical interns' knowledge scores. *European Journal of Emergency Medicine*, *18*, 257–260.

Alizadeh, M., Airemloo, A., Alizadeh, B., Shakibi, A. & Aliloo, L. (2010). Performance of emergency nurses and compares it with international standards in hospitals of Oromieh University of medical science. *Journal of Orommieh Faculty of Nursing and Midwifery*, *3*, 156–161 (in Persian).

Atashzadeh Shoorideh, F. & Heidarizadeh, K. (2012). Survey for observance of disaster management standards accreditation at military hospitals in Tehran. *Journal of Nurses and Physicians in War*, *21*, 5–10 (in Persian).

Boin, A. & McConnell, A. (2007). Preparing for critical infrastructure breakdowns: The limits of crisis management and the need for resilience. *Journal of Contingencies and Crisis Management*, *15*, 50–59.

Bruce, K. & Suserud, B. O. (2005). The handover process and triage of ambulance-borne patients: The experiences of emergency nurses. *Nursing in Critical Care*, *10*, 201–209.

Carne, B., Kennedy, M. & Gray, T. (2011). Review article: Crisis resource management in emergency medicine. *Emergency Medicine Australasia*, *24*, 7–13.

Chapman, K. & Arbon, P. (2008). Are nurses ready? Disaster preparedness in the acute setting. *Australasian Emergency Nursing Journal*, *11*, 135–144.

Coombs, W. T. & Holladay, S. J. (2010). *The handbook of crisis communication*. West Sussex: Wiley Blackwell.

Drach-Zahavy, A. (2004). Primary nurses' performance: Role of supportive management. *Journal of Advanced Nursing*, *45*, 7–16.

Elo, S. & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*, 107–115.

Esmaeilpour, M., Salsali, M. & Ahmadi, F. (2011). Workplace violence against Iranian nurses working in emergency departments. *International Nursing Review*, *58*, 130–137.

Farahmand, S., Farnia, M. R., Momeni, M., Saeedi, M. & Sheikh Motahar Vahedi, H. (2013). Emergency medicine in Iran: A qualitative study. *Life Science Journal*, *10* (7s), 99–105.

Harrison, J. P. & Ferguson, E. D. (2011). The crisis in United States hospital emergency services. *International Journal of Health Care Quality Assurance*, *24*, 471–483.

Hatamabadi, H. & Alimohammadi, H. (2008). Causes of long stay patients in overcrowded emergency in a sample of teaching hospitals in Tehran. *Pajoohaneh Journal*, *13*, 71–75 (in Persian).

Hayes, L. J., O'Brien-Pallas, L. & Duffield, C. (2012). Nurse turnover: A literature review – An update. *International Journal of Nursing Studies*, *49*, 887–905.

Hicks, C. M., Kiss, A., Bandiera, G. W. & Denny, C. J. (2012). Crisis resources for emergency Workers (CREW II): Results of a pilot study and simulation-based crisis resource management course for emergency medicine residents. *Canadian Association of Emergency Physicians*, *14*, 354–362.

Hojat, M., Sirati-Nir, M., Khaghanizade, M. & Karimi Zarchi, M. (2008). Investigation of preparedness rate of Tehran's hospitals encounters unexpected events. *Daneshvar Journal*, *15*, 1–10 (in Persian).

Hoot, N. R. & Aronsky, D. (2008). Systematic review of emergency department crowding: Causes, effects, and solutions. *Annals of Emergency Medicine*, *52*, 126–136.

Hsieh, H. F. & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*, 1277–1288.

Hu, Y. C., Chen, J. C., Chiu, H. T., Shen, H. C. & Chang, W. Y. (2010). Nurses' perception of nursing workforce and its impact on the managerial outcomes in emergency departments. *Journal of Clinical Nursing*, *19*, 1645–1653.

Iranian Nursing Council. (2014).What should we do for shortage of nursing professionals? [Cited 15 Jul 2014.] Available from URL: http://ino.ir/tabid/40/ctl/ArticleView/mid/384/articleId/7535/language/fa-IR/---.aspx (in Persian).

Islamic Republic News Agency (IRNA). (2014).The emergency department problems must be resolved soon. [Cited 14 Jul 2014.] Available from URL: http://www.irna.ir/fa/NewsPrint.aspx?ID=81223362 (in Persian).

James, R. & Gilliland, B. (2012). *Crisis intervention strategies*. Belmont, CA: Cengage Learning.

Karabacak, U., Ozturk, H. & Bahcecik, N. (2011). Crisis management: The activities of nurse managers in turkey. *Nursing Economics*, *29*, 323–330.

Kellermann, A. L. (2006). Crisis in the emergency department. *New England Journal of Medicine*, *355*, 1300–1303.

Khabaryab. (2012). 4000 nursing shortage in emergency departments in Iran. [Cited 11 Jun 2012.] Available from URL: http://www.khabaryaab.com/news/648556/ (in Persian).

Khorasani-Zavareh, D., Khankeh, H. R., Mohammadi, R., Laflamme, L., Bikmoradi, A. & Haglund, B. J. (2009). Post-crash management of road traffic injury victims in Iran. Stake-holders' views on current barriers and potential facilitators. *BioMed Central Emergency Medicine*, *9*, 8.

Kilner, E. & Sheppard, L. A. (2010). The role of teamwork and communication in the emergency department: A systematic review. *International Emergency Nursing*, *18*, 127–137.

Laposa, J. M., Alden, L. E. & Fullerton, L. M. (2003). Work stress and posttraumatic stress disorder in ED nurses/personnel. *Journal of Emergency Nursing*, *29*, 23–28.

Lyneham, J., Cloughessy, L. & Martin, V. (2008). Workloads in Australian emergency departments a descriptive study. *International Emergency Nursing*, *16*, 200–206.

Mahmoudi, H., Mohammadi, E. & Ebadi, A. (2012). Experience of nurses from the emergency department management: A qualitative study. *Iranian Journal of Critical Care Nursing*, *5*, 1–10.

Mahmoudi, H., Mohammadi, E. & Ebadi, A. (2013). Barriers to nursing care in emergency wards. *Iranian Journal of Nursing and Midwifery Research*, *18*, 145–151.

Mastaneh, Z., Lotfollah, M., Jahangir, M., Doost, M. & Eshghi, A. (2011). Capabilities and limitations of crisis management in Hormozgan University of Medical Sciences. *Fasa University of Medical Sciences Journal*, *4*, 244–250 (in Persian).

McCarthy, G., Cornally, N., Mahoney, C. O. & White, G. (2013). Weathers e. Emergency nurses: Procedures performed and competence in practice. *International Emergency Nursing*, *21*, 50–57.

Merriam-Webster Online. (2014). Crisis definition. [Cited 11 Jan 2014.] Available from URL: http://www.merriam-webster.com/dictionary/crisis

Moskop, J. C., Sklar, D. P., Geiderman, J. M., Schears, R. M. & Bookman, K. J. (2009). Emergency department crowding, part 2-barriers to reform and strategies to overcome them. *Annals of Emergency Medicine*, *53*, 612–617.

Nabavi, S. M., Jafari, B., Jalali, M. S., Nedjat, S., Ashrafi, K. & Salahesh, A. (2012). Environmental air pollution and acute cerebrovascular complications: An ecologic study in Tehran, Iran. *International Journal of Preventive Medicine*, *3*, 723–729.

Netten, N. & Someren, M. V. (2011). Improving communication in crisis management by evaluating the relevance of messages. *Journal of Contingencies and Crisis Management*, *19*, 75–85.

Olivia, F. W. M., Claudia, L. K. Y. & Yuen, L. A. (2009). Nurses' perception of disaster: Implications for disaster nursing curriculum. *Journal of Clinical Nursing*, *18*, 3165–3171.

Pierre, M. S. T., Hofinger, G., Buerschaper, C. & Robert, S. (2011). *Crisis management in acute care settings*. New York: Springer.

Tehran Press, T. (2014). Ministry of Health fails to resolve the problem of State emergency departments. [Cited 15 Aug 2014.] Available from URL: http://tnews.ir/news/301424578919.html (in Persian).

Rahmani, H., Arab, M., Akbari, F. & Zaarei, H. (2007). Structure, process and activity in educational hospital's emergency department of Tehran University of Medical Sciences. *Journal of School of Health and Institute of Public Health Research*, *4*, 131–138 (in Persian).

Roberts, A. R. (2000). *Crisis intervention handbook: Assessment, treatment, and research*. Oxford: Oxford University Press.

Ruchlewska, A., Wierdsma, A. I., Kamperman, A. M., van der Gaag, M., Smulders, R., Roosenschoon, B. J. *et al.* (2014). Effect of crisis plans on admissions and emergency visits: a randomized controlled trial. *PLoS One*, *9*, e91882.

Speziale, H. S., Streubert, H. J. & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative*. Philadelphia: Lippincott Williams & Wilkins.

Still, C. R. (2008). *What strategies can be employed in the emergency department of surrey memorial hospital to facilitate registered nurses' learning in crisis?*. Colwood, British Columbia: ProQuest.

Williams, G., Chaboyer, W., Alberto, L., Thorsteinsdottir, R., Schmollgruber, S., Fulbrook, P. *et al.* (2012). Critical care nursing organizations and activities: A third worldwide review. *International Nursing Review*, *59*, 73–80.

Young Journalist Club. (2013). 35 percent increase in referring to "EDs"/Center and south of Tehran have a lot air pollution. [Cited 25 Nov 2013.] Available from URL: http://www.yjc.ir/fa/news/4646062/ (in Persian).

Zarea, K., Negarandeh, R., Dehghan-Nayeri, N. & Rezaei-Adaryani, M. (2009). Nursing staff shortages and job satisfaction in Iran: Issues and challenges. *Nursing & Health Sciences*, *11*, 326–331.

APPENDIX

INTERVIEW GUIDE

Interview guide questions were as follows:

- What are your experiences of crises in the emergency department?
- What is the meaning of a crisis in your experience?
- How and when have you experienced a crisis?
- Is it possible to describe your experience completely?
- How was the situation resolved? What was the result?
- What challenges have you dealt with in order to manage a catastrophic situation?