Injury, Int. J. Care Injured 50 (2019) 869–876

Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury

Barriers and facilitators to provide continuity of care to dischargeable patients in disasters: A qualitative study

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ARTICLE INFO

Article history:
Accepted 16 March 2019

Keywords:
Continuity of care
Hospital surge capacity
Disasters
Dischargeable patients

ABSTRACT

Objective: Early discharge of some in-patients is the effective measure to create hospital surge capacity in disasters. However, some of these patients may need to post-discharge continuity of care. The aim of the current study then is to explore the barriers of continuity of care, and to provide suitable solutions for potentially dischargeable patients during disasters.
Methods: This qualitative study was conducted in Iran in 2017. The data was collected via unstructured interviews with 24 disaster professionals; and analyzed by content analysis method.
Results: Identified barriers to the continuity of care were classified into seven categories, 'lack of disaster paradigm'; 'challenges of pre-hospital system'; 'insufficient coordination and cooperation'; 'inadequate hospital preparedness'; 'lack of using available resources and capacities'; 'poor patients' knowledge' and 'poor planning'. The suggested solutions for post-discharge continuity of care were: creation of registry and follow-up system; removing pre-hospital challenges; including disaster management courses in medical school curriculum; promoting hospital preparedness by All-Hazard Approach; and effective use of available resources.
Conclusion: Understanding the barriers to continuity of care for discharged patients for adopting policies based on experiences of health care providers can help planners to design and implement effective programs, which will enhance patients' access to necessary care.

Introduction

Disasters are situations in which disruption, casualties, and damages caused by them are so severe that their control is not possible with existing resources. During disasters, hospitals face sudden increase in critically ill patients and they have a major role in reducing disaster losses [1–5]. However, previous incidents showed inadequacy in both function and capacity of hospitals after disasters, also most hospitals have limited beds even in normal circumstances [2,4,6]. Hospital Surge Capacity can provide required treatments during sudden influx of the injured [5,7]. Hospital Surge Capacity is defined as the ability of the hospitals for management of resources at the time of sudden increase in the number of patient [8–10] and is performed in various dimensions such as discharging elective patients, postponing routine activities, increasing manpower, developing physical space, and increasing drug and equipment stores [11,12].

Medical Surge Capacity is one of the ways to increase the capacity of the hospital, by early discharge of some in-patients and

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https://doi.org/10.1016/j.injury.2019.03.024
0020-1383/

utilizing available resources for victims [5,13]. However, it can affect health of the discharged patients with chronic diseases such as cardiovascular, respiratory, neuropathic and psychiatric due to interruption of the treatment, particularly in disaster situations that may lead to infrastructure destruction and lack of access to health care [14]. Therefore, continuity of care should be considered in the early discharge of patients in disasters. In most disaster plans in the health system, prediction of treatment needs of these patients is overlooked but managing disaster victims and environmental health are prioritized instead [15–18].

Disaster studies are often related to the management of casualties, but the drawbacks of delay in caring of patients hospitalized at the same time have not been investigated [19,20]. According to a study in the United States, after disasters the most focus is on disasters victims rather than the patients hospitalized in a hospital. A literature review study in the United States on the impacts of disasters on access to health resources and quality of life of patients with chronic diseases indicated that disproportionate access to care after disasters would increase adverse health consequences [17]. Considering the importance of improving health status of discharged patients in disasters, research should be performed in order to design appropriate response programs [1]. The present study aimed to explain the barriers to the continuity of care for dischargeable patients and to provide effective strategies to improve continuity of care based on the experience of health care professionals.

Methods

Conventional content analysis approach was employed for conducting the study. Content analysis is a method that can be used with either qualitative or quantitative data and in an inductive or deductive way. This approach is useful when existing theory or research literature on a phenomenon is limited [22,23].

Study setting, participants' selection and data collection

This qualitative study was conducted in Iran, as one of the most disaster-prone countries in the world [21]. Purposeful sampling was applied for data collection through unstructured interviews. These kind of interviews are not conducted according to a restructured interview guide and provide the richest source of data [24]. The study was conducted by interviewing 24 participants who had practical experience or theoretical knowledge about "continuity of care in disasters" and had at least one experience in disaster situation. Interview venue was based on participant willingness and mainly at their workplace. The participants included two hospital directors, five nursing directors, five supervisors, four emergency department directors, and two deputy of the Emergency Organization of the country, tow Vice-President of the University of Medical Science, three heads of home care centers, and a university professor. The age of participants ranged between 42 and 60 years, they had an average of 22.6 years work experience and BA to PhD degrees (See Table 1). Each interview lasted between 17 and 95 min, with an average of 35 min. In the beginning, participants were supervisors, nursing directors and emergency department heads. Then, other participants were selected to obtain more complete data based on how they could help to clarify the emerging categories. The interviews were conducted by S.F face- to-face and individually. The process of data collection was under supervision of D. KZ and A.V. The interviewees answered to similar set of questions which began with "What is your experience about continuity of care for early discharged patients in disasters?" "Based on your experience, what happened in your hospital in patient surge during disasters? What challenges did you faced after disaster for continuity of care among previous patients in the hospital? How can improve continuity of care for patient who already admitted in the hospital? What solution do you suggest to overcome these challenges? Based on above guide, additional questions were raised during interview and when authors find new concepts. Moreover, who, when, why and how words, were used for concept saturation as well as "Could you please give an example" or "Please explain more" for data and concept saturation.

Table 1
Demographic characteristics of the participants in study on barriers facilitators of continuity of care for potentially dischargeable patients during disasters in Iran.

	NO (N = 23)	%
Sex		
Male	19	79%
Female	5	21%
Age		
40-44	6	25%
45-50	11	50%
Over 50	6	25%
Experience (Years)		
15-20	8	33%
21-25	10	42%
Over 25	6	25%
Education		
Bachelor's degree	10	42%
Master's degree	3	12.5%
General physician	3	12.5%
Emergency specialist	7	29%
Post Doc	1	4%

Regarding the questions raised about the text of the interviews and filling the data gap, a theoretical sampling was used. This process continued until data saturation was reached.

Data analysis

All interviews were recorded and typed verbatim. Each interview was listened and the transcript texts were reviewed several times. Highlighted words and phrases of the text were specified, then the initial codes were formed by note taking on the margin of the texts, and the participants' experiences were determined in the form of concepts. In the initial coding process, the participants' words were used and condense meaning units were formed; and then the codes were categorized into sub- categories based on their similarities and differences. This process continued for all interviews until the formation of the main categories.

Rigor

Credibility was ensured through assigning sufficient time for data collection and data analysis, prolonged engagement with the participants, constant comparison of participants' expressions, understanding their experiences by the researcher and maximum variety of the participants. Conformability was achieved by member check, peer check and expert check. Member check was done by returning the text of interview and summary of results to four participants for confirmation of the findings. The validity of data collection and analysis process was checked by two qualitative researchers in the research team (expert check and peer check).

Ethical considerations

The study was approved by the Ethics Committee of Yazd University of Medical Sciences with IR.SSU.SPH.REC.1395.129 code. All participants were ensured confidentiality of their personal information; and recording of the conversations was permitted by them.

Results

Seven main categories and 18 Sub-categories were formed: lack of disaster paradigm (with two sub-categories of only emergency

approach and cultural, social, and political issues), challenges of pre-hospital system (with three sub-categories of insufficient risk communication, weakness of pre-hospital measures and inappropriate distribution of the injured), insufficient coordination and cooperation (with two sub-categories of inadequate intra-organizational coordination and lack of inter-organizational coordination), inadequate hospital preparedness (with three sub-categories of weakness of All Hazards Approach emergency plan, not learning from disasters and poor collaboration of physicians), lack of using available resources and capacities (with three sub-categories of poor management of volunteers, lack of using home care centers and lack of financial resources), poor patients' knowledge (with two sub-categories of patients and their family insufficient knowledge about self-care and lack of pre-disaster education plan), and poor planning (with three sub-categories of lack of early discharge plans, failure to follow patients after discharge and lack of designing special needs shelters) (Table 2).

Lack of disaster paradigm

Hospitals paradigm and approach for dealing with disasters is one of the contributing factors in patients' continuity of care. This issue affects all phases of disaster management, from preparedness to response. Participants' experiences indicated that hospitals still do not regard disasters and disaster management as a major concern, which lead to disorganization and lack of proper response

Only emergency approach

Based on the participants' experiences, the current approach of hospitals is the Medical Base, which addresses only handling ordinary patients or emergencies. In disasters with sudden increased number of the victims, hospitals apply emergency approach and most of the time and resources are spent for a few victims, while in disasters medical resources must be allocated to maximum number of victims. Failure to change the approach from medical to emergency and emergency to disaster will lead to a weakness in discharge and follow up process of patients after discharge.

> " . . . In disasters, hospitals could not switch from the Emergency to Disaster approach, we had this experience in Roodbar, Bam, and Azerbaijan. (P 07). In the Bam earthquake, as usual, physicians began to resuscitate the injured, and suddenly the rest of the injured began to get worse . . . "(P 20)

Cultural, social and political issues

Disasters have a lot of psychological burden in the country, and cultural, social and political conditions are such that all the attention and resources are inevitably devoted only to the victims of disaster, and therefore, the continuity of care is not a priority and even forgotten. The news of casualties and managing them is broadcast by the media and the hospitals are expected to treat the acute injuries. Socio-political pressures often lead to unplanned discharge and lack of design of patient continuity care programs.

> "Along with the injured, the cameras and the authorities come. In those circumstances, if you do not quickly discharge the patients, you might be offended . . . the whole country sat down to watch TV, what happened to the casualties? . . . (P10)
>
> . . . .we can no longer say that ill- hospitalized patients are more preferred to well injured, no one follows the discharged patients anymore". (P13)

Table 2
Obstacles to continuity of care for potentially dischargeable patients in disasters in Iran.

Category	Sub-category	Example of codes
Lack of Disaster Paradigm	Only Emergency Approach	Non-effectiveness of the emergency approach to disasters Lack of changing in hospital paradigm in disasters
	Cultural, social and political issues	More attention to injuries Early discharge to reduce psychological burden
Challenges of Pre-hospital system	Insufficient risk communication	Failure of disaster management due to inadequate information Lack of knowledge about number of victims
	Weakness of pre-hospital measures	Failure to provide early care at the disaster scene Appropriate Pre-hospital triage
	Inappropriate distribution of the injured	Transferring all victims to one centers Modifying the distribution after hospitals collapse
Insufficient coordination and cooperation	Inadequate Intra-organizational coordination	Poor cooperation of private centers No definition of supportive hospitals
	Lack of inter-organizational coordination	Lack of country planning for continuity of care Poor coordination with other sectors
Inadequate Hospital Preparedness	Weakness of All hazards approach emergency plan	The necessity of planning with the All-Hazard approach Lack of understanding of disaster management
	Not learning from disasters	Not learning from big events Failure to compile protocols based on a lesson learned
	Poor collaboration of physicians	Lack of attention to the opinions of the physicians Need to develop care plans with participation of physicians
Lack of using available resources and Capacities	Poor management of volunteers	Impairment in centers due to congestion of volunteers Non-use of volunteers in continue of patients' care
	Lake of using home care centers	The necessity of using home care centers The lack of culture of using nursing centers
	Lack of financial resources	The need to determine the financial credentials for continuity of care The necessity of insurance coverage for discharged patients
Poor patients' knowledge	patients and their families' insufficient knowledge about self-care	The need for training patients when discharge The need for the patient's family to participate in patient care
	Lack of pre-disaster education plan	Lack of supportive education forecast The need for pre disaster patient education plan
Poor planning	Lack of early discharge plans	The need to plan for disaster clearance Lack of ASSESSE patient protocol
	Failure to follow patients after discharge	Failure to follow care after discharge Lack of continuity of care plan
	Lack of designing Special Needs Shelters	Not having Medical Needs Shelters in Disasters accommodations the patient from nearby towns in lodging house

Challenges of pre-hospital system

The factors affecting the non-following of patients' continuity of care in pre-hospital system included poor communication, inappropriate triage, and defective distribution of the injured. Referring of well injuries and inattention to the capacity and resources of hospitals in distribution of the injured may lead to overwhelming of the hospital and diminishing of resources before the arrival of severe injuries.

Insufficient risk communication

Weakness in the announcement of pre-hospital system and the hospital confrontation with the unexpected increase of the injured are the main obstacles to proper management of disasters. Effective communication and accurate information about the type of disaster, incident progress and probable number of the injuries will enable hospital to have a better plan for discharge and follow up the patients.

"We were informed about the referral of five or six injured. Immediately afterwards, it was announced that the debris collapsed, meanwhile many ambulances arrived at the hospital, we were shocked. (P4) Hospitals are always notified about the incident after all of the others. Six hours after the earthquake, they told us that there were about 1000 injured". (P11)

Weakness of pre-hospital measures

Inappropriate triage, lack of primary care in the field, the referral of all injured to the hospital were regarded as the factors which have a negative effect on the discharge and continuity of care. Transfer of green triage injuries to the hospital causes burden and disturbance in hospital functions resulting in patient's unplanned and hastily discharge.

"In Zarand earthquake, the pre-hospital system transferred the injured without triage (P 24). We did not have a good triage; the injured who was on his feet brought himself to the hospital and the others remained" (P16).

Inappropriate distribution of the injured

Interviewees stated that some injured distribution problems were transferring all injuries to hospitals in the center of province, lack of utilization of private hospitals and inattention to specialty of hospitals. These problems lead to disturbance, staff exhaustion, resource deplete and unplanned patients' discharge.

"Our hospital was specialized, but all the focus of our advanced ICUs and expert personnel was on the victims who could also have been treated in other hospitals. (P17). It was only when the hospital was collapsed, that they thought to transfer the injured to other hospitals". (P18)

Insufficient coordination and cooperation

Continuity of discharged patients' care requires both intra- and inter-organizational coordination and cooperation of various organizations, even in the provinces adjacent to the affected areas. The main problem is insufficient pre-disaster coordination. The collaboration of organizations such as schools, sport organization, hotels and mosques to provide temporary accommodation for patients requiring minimum care will help the hospital to discharge patients more confidentially.

Inadequate intra-organizational coordination

The weak points in intra-organizational coordination included lack of pre-hospital emergency participation in hospitals exercises, lack of joint meetings with hospitals and weakness of collaboration of private hospitals in disasters. Therefore, elimination of these problems before disasters reduces time wasting during a disaster.

"Under normal circumstances, we do not have coordination meetings with hospitals; we do not know each other at all. Acquaintances make coordination better in critical situation". (P11)

Lack of inter-organizational coordination

In most cases, there were not any joint meetings and cooperation agreements with other organizations before disasters. Since the resources of health care sector are limited, especially in disasters, provision of minimum care for patients who don't need hospitalization requires other organizations support.

"If disaster happens in our city, with the current available capability, we cannot provide services to the injured people. Governors must identify a specified protocol to determine the supporter province . . . (P2). In the earthquake of Kermanshah, we used a hotel to care victims after discharge. Few hotels, mosques and stadiums should be prepared in each city before the earthquake". (P18)

Inadequate hospital preparedness

Interviewees stated that, because of victims referring in various incidents, in the referral centers disaster management is in progress. However, in other hospitals, the most focus is on the response to disasters not on the preparedness that means pre-disaster programs are not considered before disasters.

Weakness of all hazards approach emergency plan

Establishing disaster preparedness plans in hospitals by considering possible scenarios has been emphasized by governors of the health sector for many years. However, the participants' experiences indicated that disaster management and risk reduction are not considered by hospital managers, because of daily problems of hospitals in normal conditions. Further, dealing with the crisis is a formality rather than a pragmatic approach.

"Normally, the hospital has so much trouble as if we are always in crisis. It is very difficult if we want to convince managers to think about the real disaster. (P10). Our managers think it is a formality. When something happens, just then we notice how many problems we have. (P1). We have risk committee meetings, and we just write minutes of meeting [noting more!]". (P4)

Not learning from disasters

Despite the country's vulnerability to disasters and the multiple experiences of major disasters, in most cases, there are no lessons learned neither for the future incidents nor for developing management programs.

"Unfortunately, in Roodbar we also had the same problems that we experienced in Bam and Azerbaijan. (P8). After the Bam earthquake, we had many exercises, several earthquakes happened, but when a disaster occurs, we are having trouble once again. (P20)

Poor collaboration of physicians

The participants believed that physicians are poorly involved in designing the patients' continuity of care programs as a result of deferred payment or lack of attention to their opinions in making decisions. During a disaster, there is not any defined task description and responsibility for all medical groups so the cooperation of physicians is based on humanitarian sense.

However, the effective participation of physicians in formulating early-discharge protocols, predicting the treatment needs as well as implementing programs play an influential role in the continuity of care after discharge.

"Physicians do not cooperate for many reasons like lack of their payment, not listening to their words or any other reasons. (P17). Based on my experience, in past disasters, the physicians cooperated emotionally and conscientiously". (P10)

Lack of using available resources and capacities

Participants stated that hospitals didn't have a plan for the proper use of resources and capacities to continuity of care in disasters. For instance, there were no plans regarding the management of volunteers or using the capacity of home care centers in disasters.

Poor management of volunteers

Proper management of volunteers can compensate for the shortage of manpower in disasters. On the other hand, lack of management of volunteers leads to chaos in the hospital, especially if they have not trained to work in critical situations. The expertise of the volunteers should be identified pre-disasters and used in hospitals or temporary accommodation centers for discharged patients.

"Our manpower was very limited, and the volunteers who came were not sure which areas they could work on . . . (P22). Most volunteers really needed management and training. A physician from Germany was working with us and it was clear that he just wanted to serve, not to look for excitement". (P6)

Lack of using home care centers

With their specialized staff, home-care centers are among effective sources to care of patients who need minimum care but they do not have an indication for hospitalization. They also play a significant role in reducing hospital bed occupancy. In a disaster, the capability of these centers can be used for continuity of care. However, lack of culture in using home care centers and their lack of insurance coverage have made hospitals less likely to use these services even under normal circumstances. Moreover, since there is no prediction of financial resources in disasters, there are in practice no plans to use the capacity of these centers.

"A nurse can take care of some In-patients at home, but we do not consider the capacity of home care centers (P11). We must have contracts with home care centers and present the list of discharged patients to them. However, the financial discussion must be resolved, so that the patient doesn't worry about any additional costs". (P13)

Lack of financial resources

The capacity of the hospitals, in terms of beds, space, and manpower is not adequate for simultaneous response to the surge of victims in disasters, so it is necessary to use the assistance of private centers and other organizations. This should be considered before occurring of disasters.

"We could not reduce the public sector capacity, which was focusing on disaster, to provide care for discharged patients, we should have used the private sector's capacity, but financial resources were not considered."(P13)

Poor patients' knowledge

Participants believed that educational planning for discharged patients was inadequate and the patients' training in disaster situations is not considered. Patients were quickly discharged and they were not well aware of self-care, recognition of signs related to health problems, and timely return to the hospital. The knowledge of patients and their relatives is essential for the continuity of care after discharge; because there is not enough access to medical facilities due to the destruction of infrastructure at the time of disasters.

Patient and their families' insufficient knowledge of self-care

Despite the key role of companions in the care of early discharged patients in the case of lack of human resource and the destruction of health facilities caused by disasters, there is no planning for training and involvement of the patients' relatives in continuity of care.

"Patient relevant were worried about how their patients would be treated if their patients had problems in earthquake conditions . . . (P17). The best thing is to train the companions in a way that they can care their patients at home". (P16)

Lack of pre-disaster education plan

Based on participants' experiences, hospitals did not have a good performance in predicting supportive education of early discharged patients in the Hospital Disaster Plan (HDP). However, due to weakness in decision-making in disaster, all plans should be pre-designed and practiced. Training materials should be prepared in advanced, since there is not enough time and disaster emergencies disrupt the focus of the patient's.

"I spent much time on training patient visitors, but later it seemed that there was no explanation given to them because they did not focus (P10). It was better to have written notes and instructions in advance to give to patients in the discharge". (P7)

Poor planning

According to the participant's point of view, even in normal circumstances, there is no following-up of patients after discharge and often leads to re-admission of them. In disaster situations, this would become far worse, and the lack of following up of patients after leaving the hospital leads to serious problems. The continuity of care after discharge needs the anticipation of the required resources and planning for the temporary accommodation of patients until they become better or the disaster conditions go to be stable.

Lack of early discharge plans

Participants stated that there was no prepared plan for early discharging patients. On the other hand, lack of discharge guideline in normal circumstances results in a high hospital bed occupancy and hospital collapse after disasters. Physicians are forced to evacuate the wards due to shortage of beds to admit the victims, so they discharge patients without a careful assessment.

"Under normal circumstances, we do not have discharge guideline. All the patients stay in the hospital while they are able to walk, which is a wrong . . . (P11). In the earthquake, we ordered admission of the injured to the extent that we no longer had a bed; just then a physician discharged the patients who could walk. We thought about the discharge of patients too late."(P13)

Failure to follow patients after discharge

Participants stated that under normal circumstances, hospitals do not have an active plan to follow-up the discharged patients, and often the patient is discharged only with brief training.

Unfortunately, in disasters, the destruction of health care infrastructure as well as lack of patient registry systems lead to the abandon of patients after discharge, which sometimes causes irreparable consequences.

"We had an amputation case in which the patient stayed five days at the hospital instead of fifteen days, they told him to continue antibiotics, then he was not followed, he went to a tent without sanitation facilities. Twenty-five days later he came back to the hospital with a terrible infection! Four days later, he died in a terrible condition (P24).

Lack of designing special needs shelters

Designing of temporary accommodation is one of the issues that should be considered in the continuity of care for discharged patients. Temporary accommodation of patients until they become better or the disaster unstable conditions subside can reduce the patients stress about timely care as well as the concern of hospitals about abandoning patients. However, in the disasters occurred so far there is no documented use of Special Needs Shelters; only one participant mentioned a related experience.

"We discharged the patients of other cities to come back a few days later. They said that the roads were closed and how they could go and come back. We devoted a mosque for patients and the Taavon group individuals cared and cured the patients . . . (P20). We didn't have any plans for victims after treatment in the Bam earthquake about where they should go". (P16)

Discussion

The present study, aimed to evaluate the continuity of care challenges of dischargeable patients and to provide appropriate solutions of continuous care for them. The main barriers to the patient's continuity of care after discharge are the inappropriate approach of hospitals to deal with disasters, inadequate disaster preparedness, non-following patients after discharge, and pre-hospital challenges.

One of the important barriers, is the inappropriate approach of hospitals to deal with disasters. The governing approach in most hospitals is medical based, which is related to the medical education system at the universities to a large extent. Medical university students, who are going to be the staffs and managers of hospitals in the future, are not trained for disasters or even mass casualty incidents situations during their education [25]. As a result, they will have little ability to change their approach to the disaster paradigm. This trend makes it difficult for them to design suitable plans to respond effectively to disasters. Although Iran is exposed to various natural and man-made hazards, the overview of Iran's curriculum of medical sciences shows that there is no medical course about "Disaster" [26]. The results of a study in Iran about the educational needs of students essential for playing role in disasters indicated the requirement of disaster management academic training [25,27]. Another study in Germany evaluating the self-perception of medical students' knowledge in the field of disaster medicine demonstrated that there is still no standard teaching concept for students despite the implementation of the disaster education programs at medical colleges [28]. It seems that the inclusion of a standard disaster management training program into the medical curriculum can be an effective step in changing the approach of hospitals to disaster.

The other result of this study was inadequate disaster preparedness. In recent years, important steps have been taken in disaster management in Iran including the approval of curriculum in PhD, Ministry of Health and Medical Education intervention, as well as the elaboration of a large number of instructions and continuous training. However, disaster management has not been considered as the main concerns of hospital managers particularly in prevention and preparedness phases [29,30]. Furthermore, disaster response plans usually are on the paper without exercise and evaluation because of the involvement of hospital managers in everyday problems. Several studies have been conducted in Iran to assess the preparedness of hospitals in disasters, which illustrated weak and moderate levels of hospital preparedness [30–34]. Improving hospital preparedness in disasters requires the change in attitude and understanding of the importance of disaster management by managers. Designing of patients continuing care protocols and implementing frequent exercises based on national scenarios will make hospital preparedness plans applicable after discharge. On the other hand, documentation of lessons learned from previous disasters and their application in the development of (HDP) is necessary to improve the hospital's preparedness [35].

Another barrier to continuity of care was non-following of patients after discharge. Participants' experiences indicated hospital-based treatment and care system and lack of active follow-up of patients after discharge in Iran. Thus, the patient's relationship with the hospital is disconnected after discharge and treatment is performed only after relapse of the disease and return of the patient. Moreover, the experiences of some countries such as the United States indicated a reduction in the rate of readmission and prevention of adverse events in discharged patients with follow-up outside the hospital [36,37]. After disasters, the likelihood of non-compliance increases due to the destruction of the infrastructures and the mental and social conditions of the affected area [4,17,38]. Aiming to determine the relationship between medical errors and discontinuity of care, a study in the United States illustrated that one-third of patients needed readmission three months after discharge due to drug mistakes [39]. Another study in the United States examined the impact of disasters on medically vulnerable populations and showed that hospitals encountered secondary surge capacity after disasters are as a result of lack of access of vulnerable groups to routine treatment [4]. Moreover, another study in the United States reviewing the literatures on pre- and post-disaster health care emphasized that discontinuity of care leads to acute health problems and an increase in the mortality in this group [17]. Although in early discharge process, low-risk patients are often discharged [40], because of incompletion of their treatment duration and concerns mentioned about lack of self-care knowledge of patients, it is essential to include the following measures in HDP: designing a registry system, applying all health system capabilities for patients' fair access to minimum care, determining scheduled visits, and ensuring that the patients receive proper care at home by calling them.

The challenges of the pre-hospital system were among important outcomes of this study, which were not only observed in most of disasters but also in other mass casualty incidents [29,35,41,42]. The factors such as poor coordination, lack of primary care in the incident field, inadequate triage and inappropriate distribution of victims cause the hospital not to find proper time to effectively discharge and follow-up the patients. In most disasters, the information is exchanged between the Emergency Operation Center (EOC) of the Ministry of Health and Medical Education and the universities. However, hospitals as the operational departments lack the EOC and are often shocked by the number of unexpected injuries. Burkle emphasizes pre-hospital emergency coordination in disaster management and suggests that crisis management protocols should be included in improving the triage system, assessing the injuries, and establishing care centers at the closest distance from the incident site in order to avoid overcrowding in hospitals [43]. In Iran, a study was conducted to assess how to meet the medical needs in the Bam

earthquake [44] and another study was conducted for designing an intra-organizational coordination model in disaster management [45]. The results indicated that the weak coordination before and after the disaster is among the main problems related to disasters. It seems that joint meetings and holding scenario-based exercises may result in improving the coordination between the pre-hospital system and the hospitals [46].

Strengths and limitations

The strength of this study is the diversity of participants from different sections of the health system, from the highest levels of decision-making in (MOHME) to nurses working in hospitals and home care centers in different provinces and cities.

One potential limitation is that the current study is focused on participants mainly employed in different sections of the health system, while other organizations were contributed to the continuity of care and were not present in this study. In addition, compare of quantitative studies, low number of the participants may be another limitation; however, the rich and well saturated information from participants could overcome this manner [47].

Conclusion

Continuity of care of early discharged patients has faced many challenges. The most important challenges are inappropriate approach of hospitals to deal with disasters, inadequate disaster preparedness, pre-hospital challenges and the lack of patient's registry and follow-up system. Furthermore, understanding the barriers to continuity of care and adopting policies based on experiences of care providers can help planners and managers to design and implement effective programs, which will enhance patient's access to necessary care.

Author contribution

SF and DKZ were involved in the study conception and design, data collection, data analysis, manuscript writing, its revision and editing. DKZ and AV also were study supervisors. AV was involved in the design of study. All authors read and approved the final manuscript.

Declaration of conflict of interests

The authors declared that there is no conflicts of interest with respect to the research, authorship, and publication of this article.

Acknowledgment

The study was supported both financially and officially by Shahid Sadoghy University of Medical Science, Yaza, Iran. It was also approved by the Ethics Committee of Yazd University of Medical Sciences with IR.SSU.SPH.REC.1395.129 code. The authors are thankful to Shahid Sadoughi University of Medical Sciences, which supported this study. Moreover, they would like to express their gratitude to all participants who spent their precious time on the scientific richness of this study and to Dr. Amir Nejati for his useful comments.

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