Health Sector Coordination in Disasters: Barriers & Facilitators

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ABSTRACT

Background: Coordination is a critical factor in successful organization and appropriate response to disasters. In this regard, a centralized coordination mechanism is the first step towards an effective, efficient, and sustainable response in order to be ensured of the short- and long-term recovery. Thus, this study aimed to identify and prioritize the barriers and facilitators of coordination in disasters.

Materials and Methods: This research was a descriptive and cross-sectional study, conducted in 2016. The participants comprised 22 experts in field of disaster. Data collection tool was a researcher-made questionnaire according to the analytical hierarchy process approach. For data analysis, we used Expert Choice software.

Results: Based on the results, "dominance of organizational approach instead of national points of view when addressing the health management during disasters," took the first priority rank, earning the score of 0.344 among the barriers. Furthermore, among the facilitators, "having a processive and organizational view in health management during disasters," took the first priority rank, earning the score of 0.374.

Conclusion: To increase the effective coordination in health area, we should develop infrastructure and structural measures, which include bolstering authorities' belief about the health system's role in the response to disasters, reinforcing the national approach rather than organizational approach in the field of health at disasters, implementing the coordination requirements, attending sufficiently and specifically to public participation, reducing the organizational friction in the health field for sharing resources and information, raising the level of readiness with a focus on people and training programs, and finally creating an evolutionary process in the health field at disasters.

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1. Introduction

Disasters and emergencies do neither occur at appropriate times nor within certain borders [1]. No one knows the exact time and place of these events [2] and people have always suffered from unexpected events that led to injuries and deaths [3]. The statistics shows an increase in natural disasters in recent years. In the past decade, approximately 1 out of 6 persons have been affected directly or indirectly by these events in the world; more than 90% of these people are in less developed or developing countries [4]. Therefore, everyday hundreds of millions of people face the risks of disasters and accidents that endanger their health and lives [4]. International and local systems which are supposed to support the people's health and lives are destroyed by disasters. Probably, these organizations are weak to deal with crises and disasters [5].

The factors that complicated the process of responding to disasters include high level of uncertainty, intense stress due to the results of activities, time constraints, lack of information in the early stages, a high volume of data at a later stage, the problem of access to quality information, lack of resources, lack of coordination, and poor communication. These are frequent problems that relief agencies are facing in disaster operations [6, 7]. Two case studies done in Iran on health services and rescue operations in disasters indicate that lack of coordination in providing health and cure services and rescue operations are main problems of responder organizations in disasters [8, 9]. This leads to insufficient use of resources and inefficient response of these organizations [10]. Therefore, a comprehensive plan to ensure a rapid response and coordinated management is required in disasters with high fatality rate [11].

Disaster management is an example of multi-agency planning that requires cooperation in emergency situations and fulfillment of desirable final purpose. Monitoring these conditions needs coordination of different sources and specialists who participated in the response [12]. This management method is a combination of management and planning issues which aim to coordinate projects and programs, so that the codification and implementation of these programs be optimized. When it comes to managing disasters, all relevant institutions and organizations must be under one command to do their activities coordinated in a best way to eliminate parallel activities [13].

Most scholars agree that coordination can increase efficiency in the initial response. However, coordination is a motivating challenge [14]. Researchers and practitioners agree upon the importance of coordination in emergency situations when so many groups are involved and work in disaster to reach a common goal. Thus, to coordinate the activities it is necessary to hold a number of structures [15]. Sharing of information is critical to coordination and the effectiveness of the entire operation would be affected if these activities are not aligned. Kruke and Olsen stated that lack of coordination is a challenge in complex humanitarian emergency [15].

Coordination among the various participants at the time of disaster requires detailed information and frequent communication with available resources. Information and accurate planning related to disaster resources help eliminate parallel activities and useless resources [14]. The activities of different organizations must be coordinated, otherwise activities done by one organization can cause problems for the others. Therefore, different organizations are expected to do their efforts as an integrated team, and share their common purposes. However, their distinguished role is determined according to their associated expertise in disasters [16]. There is a system in the United Kingdom for coordinating emergency services in disaster response "The Emergency Management Combined Response System (EMCRS)". It is a general management framework with a control system and complex 3-layer command designed by the British government to enhance coordination among organizations in response to disasters [12].

Therefore, coordination is the critical factor for successful organization in disasters and a centralized coordination mechanism is the first step towards an effective, efficient, and sustainable response to ensure the short- and long-term recovery [17]. Supplying information is an essential factor in increasing coordination in disaster management. Besides, identifying the basic information such as severity and time of the incident, and sharing it with others are another factor than can increase coordination [6]. Coordination in the humanitarian response to disaster is not as simple as a set of specific behaviors that call for urgency to maximize the benefits and minimize inefficiencies [17]. Because various governmental agencies, international organizations, civil society, and affected communities try to provide an appropriate and effective response in disasters in various stages of responding such as planning, operations, data collection, management of information, and resource mobilization [17].

The activities that improve coordination are as follows: development of common strategies, assessment of situations and requirements, sharing key information to respond to targeted programs, organizing sessions of coordinated communities, mobilizing and allocating strategic resources, attending common problems, and sharing coordination mechanisms and tools [12]. After a disaster, effective coordination among relevant organizations, especially the gov-

ernment, international community, and non-governmental organizations, are critical to minimize response time in disasters, allocate appropriate resources, and avoid parallel activities. As a result, effective coordination has the potential power to coordinate emergency preparedness, response time, and long-term development strategies [17].

Regarding the benefits of the coordination between agencies in response to disasters and emergencies, as well as the results of studies carried out in Iran on the rescue operations and providing health services (which showed that the lack of coordination is the most important barrier for providing effective health services in such events) [8, 9], in this study, the researchers investigated the causes of incoordination within and among organizations at the time of disasters in Iran. Also, they searched for ways to achieve such coordination and implementation of these methods and principles in the area of Tehran to examine the proposed strategies to achieve harmony at the time of disaster.

2. Materials and Methods

A grounded theory method was applied in this study to analyze data. Based on Strauss and Corbin [18] findings, we could suggest new insights, improve understandings, and provide guidance for proper action. It is an appropriate method for new areas if we want to explore a known area from a fresh point of view [18, 19].

Study setting

This current study includes the experts of health management in disasters who were mainly in Tehran. Iran is among the top 10 disastrous countries in the world and 4 in Asia [20]. Earthquake, flood, and drought are the most frequent disasters happening in Iran. Approximately 93% of Iran has the potential of experiencing earthquake and despite being a dry country 50% of its territory is exposed to the risk of flood. Thus, the necessity of disaster management seems obvious. Undoubtedly, health is the most important issue among all different components of disaster management [21]. The establishment of the organization of crisis management, formation and activity of Disaster Secretariat at the Ministry of Health, designing and commissioning the center of operation direction at the Ministry of Health and medical sciences universities, designing the national schema for clinical preparation for disasters, training specialized human resources at PhD level, and holding several training courses at national and regional levels are some efforts with the aim of improving the health management during disasters throughout the nation.

Despite several efforts and irrefutable progression of the country in this field, the multiplicity of involved organizations providing health services during natural disasters and their incoordination (despite the foundation of the organization of crisis management), and the absence of a national framework for response are some concerns which justify deep analysis of health management during disasters using scientific research [22].

Sampling and data collection

Nineteen male and 3 female health managers participated in this study. Participants in this study had at least three years' experience in health management in disaster (including five Emergency Medicine Specialist, three PhD Health in disasters and six General Physician and nurse (two participants) and PhD Health Management (three participants) and specialized surgical medical (one participant) and PhD of Social Work (one participant) and PhD of Health (one participant). Purposeful sampling for initial interviews was targeted and according to the emerging codes and categories, data were collected by means of theoretical sampling.

Data analysis

All interviews were recorded and transcribed. They were confirmed by the participants and were fully analyzed. Data analysis was performed based on Strauss and Corbin (2008). Furthermore, the data from each interview were analyzed before the start of the next one. This way, the unanswered questions in previous interview were emphasized more appropriately in the next interviews. Accordingly, the first few interviews directed the next ones.

Three types of open, axial, and selective coding were implemented in the study. All interviews were reviewed line by line and repeatedly in the open coding stage and the coding was accomplished by the author using keywords and phrases. A total of 735 initial codes were extracted in this stage. Then, 43 sub-categories were identified after continuous comparison of codes in the axial coding stage. Finally, 10 main categories were collected in selective coding stage after comparing the sub-categories of the previous stage.

Data precision

This study was validated by four criteria recommended by Schwandt et al. [23]: credibility, confirmability, transferability, and dependency. Credibility was confirmed via the triangulation strategy. Moreover, semi-structured interviews, field notes, and prolonged engagement in the subject matter provided study credibility [24].

Triangulation of researchers in the research team took into account different perspectives when conducting checks

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[25]. Peer checks were performed via weekly research team meetings when our research group and experts discussed and reviewed emerging data and data analysis. Member checks were done by providing a summary of the analyzed interviews and extracted codes to participants so that we could incorporate their feedbacks and ideas for corrections.

In fact, in some cases when participants debated extracted codes, further explanations were requested and coding procedures were revised. Then, we achieved new codes in further analysis. Conformability of the data was done by the lead researcher, who studied and collected ideas and concepts of other scholars and documents. Transferability of the data was supplied by offering a comprehensive description of the subject, participants, data gathering, and data analysis [26]. Dependency is validated through the current manuscript, which provides detailed information for other scholars to replicate and extend the study [26].

3. Results

Based on the results extracted in our qualitative study, 12 themes were proposed by the experts, including 6 barriers and 6 facilitators. Among the barriers, "dominance of organizational approach instead of national points of view when addressing the health management during disasters", took the priority rank of 1, earning the score of 0.344 (Figure 1). Among the facilitators, "having a processive and organizational view in health management during disasters", took the priority rank of 1, earning the score of 0.374 (Figure 2).

Coordination Barriers

Lack of practical approach in health management during disasters

According to the interviews, lack of a clear approach in health management during disaster was one of the barriers of coordination. One example of participants' quotes was as follows: "The lack of risk mapping in health management during disasters".

Lack of implementation of coordination necessities and infrastructure for health management during disasters

According to interviews, the insufficient implementation of coordination and infrastructures for health management during disasters is one of the most important barriers of coordination, which is presented by one participants' quotes as follows: "Insufficient attention to the main function of Emergency Operation center (EOC) in health management during disasters".

"The first reason of our inconsistency in Bam earthquake was the fact that we did not have a coordinated structure. We did not have EOC. However, despite the current presence of EOC, the involved people do not fit this structure. They do not have EOC vision. They do not see the management as a single unit. Everyone acts on his own. This vision has not been emerged in our managers yet. It is being improved gradually but it is still far from ideal".

Insufficient enforcements for health management during disasters

Unfortunately all those efforts which are stopped at theoretical levels and do not have necessary enforcements are considered ineffective in developing countries, especially Iran. Thus, the possession of enforcements for successful operations is one of the factors for creating the expected results in all subjects, especially coordination. One of the reasons for inconsistency in health management during disasters was found to be the insufficient enforcements which is presented as follows in the form of 4 sub-categories with one example of participants' quotes: "The lack of clear borders in health management during disasters".

Dominance of organizational approach instead of national methodologies in health management during disasters

According to participants' views in this study, organization-centricity and lack of national approaches are of the most important reasons of inconsistency of organizations responsible for providing health services in disasters. This obstacle is explained in 5 sub-categories and
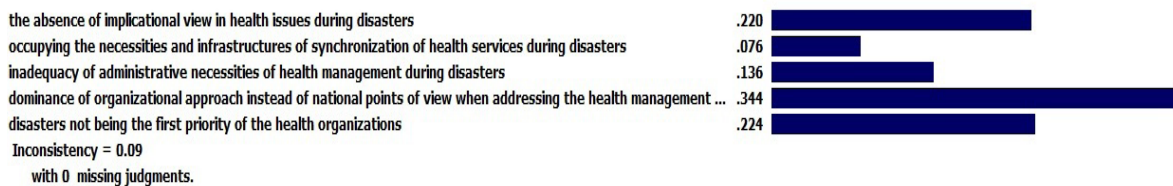

the absence of implicational view in health issues during disasters — .220
occupying the necessities and infrastructures of synchronization of health services during disasters — .076
inadequacy of administrative necessities of health management during disasters — .136
dominance of organizational approach instead of national points of view when addressing the health management ... — .344
disasters not being the first priority of the health organizations — .224
Inconsistency = 0.09
with 0 missing judgments.

Figure 1. Priority of coordination barriers in the stage of response to accidents.

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Figure 2. Priority of coordination facilitators in the stage of response to accidents.

one example of participants' quotes in the following: "Totalitarianism in health management during disasters".

One of the newly found issues in this study was totalitarianism approach in this field. Unfortunately, due to the dominance of traditional managing (funding based on reports), the organizations involved in health management during disasters show great enthusiasm towards directing the activities to embellish their own reputations which makes them uneager to do team work resulting in the creation of destructive inter-agency frictions.

Health management during disasters not being a priority

According to the results, lack of health managers' faith in disaster management, instability of management in disasters due to political changes, and ignoring the counseling principles by health policy makers are of the important inconsistencies in this field which are presented in the following participants' quotes: "The lack of faith in disaster management by health system authorities".

Coordination Facilitators

The importance of public participation

Based on the participants' statements, the key to the success of developed countries in disaster management is their trust on their citizens' handling the crisis, some even just supervise the disaster management. Considering the importance of public participation is one of the facilitators in health management during disasters, which is explained in one of the participants' quotes: "Paying attention to the coordination factor in the scene of accident in the field of health management during disasters".

Processive and systematic visions in the field of health management during disasters

The results of the present investigation demonstrated that common literacy for organizational interactions, systemic and comprehensive visions for rolling the attached links, inter-sectional management in health systems, and most importantly, paying attention to the

complications of health management during disasters are the essential factors for improving the coordination of health management during disasters. These issues were explained in one participants' quote: "the complications of health management during disasters".

Necessity of understanding and access to resources and information in the field of health at disasters

The real need can be accounted if an individual has access to information and prompt to deploy the resources according to those needs. This is the kind of management that the information and resources require the correct definition of actual role of operation's guidance centers in the field of health at disasters in the following (EOC) one quote have come from the participants: "Due to the importance of information management and resource management in health".

Evaluation and feedback systems after disasters in the health sector

Monitoring and evaluating are considered among the management principles that highlight the strengths and weaknesses of a system and clarify it for users. Findings of this study suggest that if you have an evaluation system, evaluation and control within the health field in disasters play a decisive role in the elimination of inconsistencies and increase the coordination dramatically in the next crises. One of participants quoted this in the following way: "Having an evaluation and control system in the health field at disasters".

The necessity of performing the readiness indices in the health management in disasters

Findings of this study suggest that improving the readiness should include realistic program design and educational programs in the health field at disaster which will lead to the promotion of coordination indices. There is a direct relationship between amount of preparation pre-event and amount of coordination post-event. One of the participants have quoted in this regard: "The necessity of design training programs in the health field at disasters".

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4. Discussion

The functional focus of our health system and the extended attitude of treatment-oriented and conflict of interests have made "the health field at disasters" to be forgotten. It is the first and foremost demand of people at disasters; however, it is neither the priority of the Ministry of Health, nor the common perception and belief in this area. Despite the valuable efforts that took place about the health field at disasters in recent years, there is no acceptable coordination on delivery of health services in disasters (e.g. Bam earthquake). With a glance at developed countries, we see that the risk reduction programs have been regarded as one of the pillars of sustainable development and our country will be forced to enter the field of disaster management as a developing country. Lack of strategic approach in the health field at disasters was the first finding of the study which were emphasized by the participants.

The crisis management is a complex issue that requires a special attention, presence of relevant expertise, and close cooperation between all organizations and relevant institutions in various dimensions at different national and regional levels. This collaborative participation is required not only during the outbreak of crisis, but also in various stages of readiness as well as before and after the crisis. Therefore, an institution or ministry cannot perform it alone and requires the support and participation of these 3 branches. Because the authority and responsibility of these organizations partly overlap, it may lead to parallelism and imposing the heavy and ineffective costs. Therefore, the having a strategic plan at crisis management is necessary. This strategy should be directed through the planning and macro-policies, explain the direction of activities and chain of processes, and prevent the outbreak of turbulence [18].

To success in this area, we require a strategic and behavioral program. According to the obtained findings, the strategic approach requires the recognition of threat from the local to the national level and formulation of each region scenarios fit to its own terms which are the most important requirements of a strategic approach. Haqparast and colleagues in a similar study have reported that the inadequacy of strategic infrastructures in the health field at disasters, including the necessary roles and performances and lack of strategic approach are the barriers of coordination [19].

Van Scotter and colleagues in their study have stated that the lack of a long-term plan and needed time to implement the coordination of requirements will hinder coordination in the form of interdependence perspective [20].

According to research findings, the health field in disasters, which is also influenced by crisis management agency, suffers from lack of administrative regulations and procedures, sufficient authority, clear boundaries, and even full implementation of the current legislation. In this regard, it is necessary that the policies in crisis management be designed both at the national level and at the health field in disasters with regard to the necessary administrative requirements to achieve the defined objectives and missions. Having ready and expert personnel, dynamic organizing, and a network for human resources for quick and timely response to the events and disasters are considered the important requirements of coordination at disasters in the study of Majchrzak and colleagues [21].

Research findings show that the totalitarianism in the field of health at disasters, having a political and advertising outlook and competition for offering the unreal statistic by the authorities in relevant organizations and showing the organizational activities for obtaining the budget and not staying back of the other organizations are considered as the major challenges in the field of health at disasters, so attempt to promote a national approach and avoid the organizational and promotional approach are the important tasks of policy-makers and relevant managers that this requires the development of the culture in this area to reduce the totalitarianism.

Defining the common and national goals with the outlook to health approach and having the common understanding in this area can be resolve many existing challenges in the area of coordination within the organizations.

Currently, crisis management is seen as a marginal issue based on reactive responses, a task in the margin of other tasks of the organizations. However, the management is something beyond the reaction and requires explanation, continuous monitoring of objectives and planning, as well as controlling, coordinating, and organizing before, during, and after the crisis. These tasks are not some cases that can be viewed on the margins of the other main responsibilities. Therefore, the crisis management will act effectively in the country when it has an independent entity and individuals only manage the crisis and not only deal with the crisis.

Whenever talking about the coordination, some directors of the national organizations for crisis management repeatedly emphasize on their good assessment of coordination while our findings demonstrated that the real-

ity of coordination is observed at the scene not in those headquarters formed impromptu in macro scales without any knowledge of the requirements of the location of disasters. Rabiei and colleagues in their study mentioned the taste function in the field of crisis management [22].

One of the main findings obtained in this study that was the main reason of many inconsistencies existing in the field of health at disasters were to have an organizational and totalitarian approach of organizations in the field of health at disasters, so that many of the participants confirm this issue and believe that trying to reduce the organizational frictions is a common and effective strategy in this area.

Lack of national response planning to disasters and weak organizational communications have been recognized as the most important factors in poor coordination of disaster management in the study of Rabiei and colleagues [22].

Another finding of this research is the necessity of having the local approach to disaster management. Unfortunately this approach is opposite in our country, and we have 90% national view, 9% provincial view, and 1% local view. Thus, these views should be revised. Based on international experiences, performing the emergency responses to crisis in large natural disasters is beyond the power of the official and responsible forces alone and performing the successful operation and reducing the damages and casualties by responsible organizations will be possible only through the organized group efforts of citizens and individuals of the society [23].

Prizzia and colleagues considered working with local factors as an important factor in creating the coordination [24]. Since the desirable coordination in providing the health services needs information from the accident scene and the first rings of coordination should start from there, the maximum attention should be toward the local approach rather than administrative approach of temporary committees for planning and coordinating. Studies indicate that the main reason for the success of developed countries in the field of disasters is to understand the importance of public participation and strengthen the community-based approach in these countries, so that they entrusted the disaster management to the people. In this regard, governmental agencies are merely responsible for monitoring, policymaking, and planning in this area.

Education and development of a culture in the field of health at disasters were the other findings that participants frequently mentioned them. It has been neglected in health area at disasters unfortunately. According to some participants, proper education promotes the coordination between sectors and the lack of education about handling disasters in the public media and the Ministry of Health hinders coordination in the field. It seems that educational program is one of the principles of promoting the field of disaster management.

In addition, having knowledge of the resources and information about desirable coordination, having clear and separated duties, and creating the coordination camp in the field were the important findings which obtained in this study. This process requires the organized efforts and activities in this area.

One of the first results of the present investigation was the fact that the real function of EOC is coordination and control which has been misunderstood with operational and field applications. The perception of many people and high-rank health organization managers of EOC is a commanding and operation center while it is really a coordination and control center which is used for gaining the information, distributing it, and making the necessary coordination to perform the commanding and operations.

Another newly found result of this study was the fact that authorities of health system neglect the importance of counseling in a way that the majority of high-rank managers of this field avoid their own involvement and time devotion by assigning inexperienced people with the duties of this field or even via complete neglecting these issues.

Our results demonstrate that the absence of belief in working in the disasters area, existing of some traditional attitudes in disaster areas such as destiny, lack of stable management in the field, and ignoring to use the experts and real consultations by the health authorities are considered the major barriers to reach desirable coordination in this area. It is recommended that the responsible managers and authorities in the field of health at disasters believe in the field of disaster management, allocation of chart and particular organizational structure in the area, and take steps in this direction to obtain the expert consultations based on scientific and empirical evidence.

5. Conclusion

Crisis management is a relatively young knowledge in our country; however, it has not grown appropriately for various reasons over a decade. Factors such as the inability to standardize the role of crisis management organizations and the inefficiency of crisis management structure in the country are major reasons that affect the health area as well. Some believe that besides the struc-

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ture (despite the growth in some areas such as providing the prehospital services in the health area and effective coordination), we do not have the necessary and appropriate efficiency in the field of health.

According to findings of this study, increasing the coordination in health area will require infrastructures and structural measures, which include strengthening the authorities' belief in the of health system in the response to disasters, strengthening the national approach rather than organizational approach, implementing the coordination requirements, sufficient and special attention to public participation, reducing the organizational friction in the health field for sharing resources and information, enhancing the level of readiness with a focus on people and training programs, and creating an evaluation process in the health field at disasters.

In the end, the authors propose that a coordination center in the health field should be formed with a focus on Secretariat of Healthcare workgroup in the Ministry of Health and development of the duties of partner and supporting organizations which are communicated to them formally, and finally conducting drills and exercises to improve the readiness and effective response.

Acknowledgements

Conflict of Interest

The authors declared no conflict of interests.

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