The Effect of Network Governance on the Elements of Crisis Management during Natural Disasters in Crisis-Related Organizations of Kohgiluyeh and Boyer-Ahmad Province

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Abstract

Due to the unexpected nature of natural disasters, any mismanagement in dealing with them may lead to more serious crises. However, providing an effective management of disasters and having an immediate control over the situation need the extensive cooperation of public and private organizations and the participation of people in the form of network governance. This study investigates the views of 140 participants, selected from the statistical population of the research using stratified random sampling. The statistical population includes the managers and the representatives of member organizations of 14 workgroups in the Crisis Management Headquarters of Kohgiluyeh and Boyer-Ahmad Province. The participants were asked about the impact of network governance on the elements of crisis management (prevention, preparedness, response, and recovery). The study has an applied purpose, and the required data were collected through correlational and survey research. With regard to the research background, after drawing the conceptual framework of the research, a questionnaire was designed for the researchers and after obtaining the necessary reliability and validity, data were collected. Then, according to the method of structural equations and factor-analysis using *smart pls* statistical software, the research hypotheses were tested. After performing the necessary statistical tests, while confirming the research hypotheses, it was found that network governance has a positive relationship with the elements of crisis management. The most effective components of network governance on the elements of crisis management are: prevention (0.78), response (0.75), preparedness (0.74) and recovery (0.62). Therefore, it is necessary to apply the components of network governance as an interactive method of disasters and crises, in the natural disasters of Kohgiluyeh and Boyer-Ahmad Province. The stages of application are respectively as follows: prevention, response, preparedness and recovery. Moreover, it is suggested to establish a network of coordinated, efficient and effective organizations that have transparency and democracy in decision-making and action. This way, we can achieve network governance, and the crisis management of Kohgiluyeh and Boyer-Ahmad province may have the most efficiency.

Keywords: Crisis, governance, cooperation, coordination.

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Introduction

The essence of various types of natural crisis is often pervasive and surprising. Natural crises include: earthquakes, floods, fires, infectious diseases. An example of this surprising nature can be observed in the outbreak of corona virus, which has hampered the economy, health, security, and welfare of the people and disrupted the management of countries. In addition to this, some parts of Kohgiluyeh and Boyer-Ahmad also suffered from floods, locust infestations and widespread fires. It seems that the 14 workgroups of the Provincial Management Headquarters face some problems in dealing with these crises. These workgroups that reflex a form of network governance often lack a unified system of leadership and the necessary coordination between workgroups and between their member organizations in times of crises. The general question of this study is thus the effect of network governance on the elements of crisis management including prevention, preparedness, response and recovery. The study is also an attempt to answer the following questions:

- During a disaster, what is the effect of inter-organizational cooperation on the elements of crisis management in the member organizations of Kohgiluyeh and Boyer-Ahmad Crisis Headquarters?
- What effect does the results of the governance network have on the elements of crisis management during a natural disaster for the member organizations of Kohgiluyeh and Boyer-Ahmad Crisis Headquarters?

Literature Review

Network Governance

Network governance usually occurs when people realize they cannot solve a particular problem or issue independently and the only way to achieve their interests is through active cooperation. In fact, network governance is an analytical framework for understanding and regulating the relationship between actors to deal with multifaceted and complex issues in the policy-making and public administration process (Deghati et al., 2019). Crisis is defined by its relationship to uncertainty. Dealing with new and irregular crises requires a specialized network of respondents (Adel Rastakhiz and Zarei, 2016, pp. 211-212). Factors that have given rise to network governance include: the complexity of policy issues, the need to harness the power and capacity of the non-governmental sector, the need for interaction between all actors (stakeholders, beneficiaries and decision makers) to solve problems, enable more participation of social institutions in the private sector, increase the speed of action and efficiency in solving important problems, increase the productivity of government agencies, reduce time in decision-making and policy-making (Office of Basic Government Studies, 2016: 10). According to Pittman and Armitage 2017, having an effective network governance is highly dependent on the cooperation between different governmental beneficiaries, the support for cooperation and collective actions, the responsibility to be respondent regarding social and environmental issues, and the optimization of relationships between governance and environmental systems and the like (Monavarian et al., 2019). The effect of collaboration has been to institutionalize common behaviors in crisis preparedness and to set standards for participating actors that are very difficult to achieve in practice (Nohrstedt et al., 2018). The term "network governance" is used instead of "network organization". For many researchers in the field of management, network governance refers to "implicit or explicit organization between devices as a single entity", or more precisely the process to achieve it. In this sense, the formal solution of controlling the activities is to provide continuous interaction and collaboration (Antivachisa et al., 2014, pp. 7-586). In fact, network governance is partly aimed at the management of relationships and behaviors of the actants in a network to enable them to act mutually. However, it is not possible to form a desirable and efficient governance without the cooperation of members (Alikhani et al. 2019: 68-69). There are three main types of groups involved in governance: government, civil society, and the private sector. The more dialogue and communication between these three sectors, the more governance will be

achieved and the smoother the path of society towards achieving economic and social development (Yazdani Zarzani, 2012: 118). Although inter-organizational relationships are a broad research topic due to the expansion and complexity of knowledge they face, some researchers consider inter-organizational networks to have three main dimensions: relational dimension (cooperation), structural (coordination) dimension, and results or performance. The relational dimension examines the effect of linking social factors (individuals or organizations) on their collaborations, while the structural dimension examines the structure and shape of these relationships (coordination) (Teymouri et al., 2011: 70). The desired results achieved by the development of network governance include effectiveness, efficiency, democracy and transparency (Deghati et al., 2019: 212-223). In fact, the structural dimension refers to the general pattern of communication between actors. The most important aspects of this dimension are the presence or absence of network links between members, the status of the network and the appropriate organization (Abili et al., 1398, p. 81).

Efficiency of crisis management is directly related to coordination and cooperation in inter-organizational relations. Organizations in crisis-free situations may not communicate with each other or the relationship between them may not have the necessary coherence and cohesion, but due to the need for emergency response and response to the crisis and its effects, they need to communicate with each other, and they need to perform the activities that are the responsibility of each of them in the framework of crisis management, in a way that is consistent with the activities of other organizations (Abdi Daneshpour et al., 2016). Organizations turn to inter-organizational partnerships when they have common goals and realize that by opening organizational boundaries and sharing their resources, they can achieve their goals more easily and quickly (Moin Najafabadi, 1999). Inter-organizational cooperation in crisis management requires the integration and mobilization of resources and coordinated actions in different areas in different organizations. In general, it seems to provide a promising basis for crisis effectiveness management (Pramanik, 2015). Another important point in network governance is that all actors are responsible and accountable for their actions. To solve a political problem, in fact, win-win games must be formed. In these circumstances, an actor, depending on the sources of power and influence he has, gains a degree of interest and is equally responsible and accountable (Ghouchani et al., 2017). In the research (Behmanesh Shakib and Kargar, 2017: 84-96) entitled "Presenting a Theoretical Model of Inter-Organizational Coordination in Strategic Management of Natural Crises with Meta-Combined Method", it was found that the main factors (intermediate variable) affecting inter-organizational coordination include four categories: integrated command, communication management, information management and resource management, and the network space of formal and informal relationships as independent variables. The space of formal inter-organizational relations includes areas of law, planning, training, training and maneuvering, evaluation and monitoring, and the space of informal relations includes: environmental factors, individual factors and organizational factors. Predicting the establishment of a coordination mechanism in crisis management is one of the most important and fundamental (and perhaps the most unique) approaches to reducing the adverse and detrimental effects and consequences of natural disasters. Coordination mechanism is a mechanism that prevents the waste of time, capital and human actions in times of crisis and increases the efficiency and effectiveness of crisis management elements and people's forces in rescue operations and even in the pre-crisis period, temporary accommodation and reconstruction. Due to the vastness of Iran and the variety of natural disasters, dealing with incidents in this country requires a comprehensive and efficient coordination mechanism (Salehi, 2006). Coordination is essential to prevent miscommunication, unnecessary overlap, and differences between actors. Maximum crisis coordination involves full integration into the performance of the various actors involved in crisis management, while at the very least this requires rapid sharing of the information that

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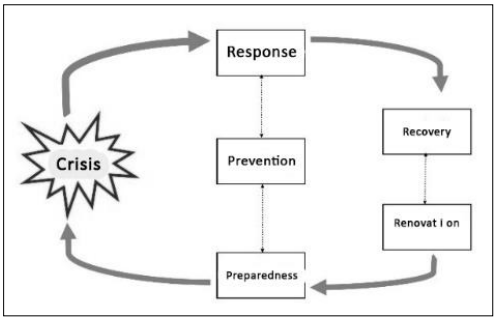
these actors have (Dragan, 2019). Inter-organizational coordination is a process in which organizations make decisions together and all have mutual interests (Bikdelou and Rahnavard, 2017). The results obtained from the development of network governance may be evaluated based on the effectiveness of the network (including criteria such as relative stability of resources, personnel and management in changing environments, quality of network management, building mutual trust by the network between its members and community members in the community level), network efficiency (including criteria such as cost-effectiveness, network profitability, costs of network processes and activities, and appropriate allocation of resources between different parts of the network), democracy development (citizen participation in the network, voice evaluation of individuals, respect for citizens' rights, balanced distribution of power among network actors and the legitimacy of the network) and network transparency (including criteria such as political and administrative transparency of network activities, network openness and network transparency for members inside and outside the network) (Deghati et al., 2019: 222).

Economic efficiency, strategic development and organizational effectiveness are among the most important consequences of implementing network governance (Monavarian et al., 2019: 109). In good governance, one can hope that the efforts of the actors will lead to the desired result (Alvani, 2009, p. 3). A major need to improve inter-organizational crisis management is to invest in technical information infrastructures to support related tasks, cognition, communication, coordination, and collective control. A society learns to manage the crisis more effectively with the cooperation of other organizations and the wider judiciary (Comfort, 2007).

Crisis Management

Crisis is a serious disruption of the functioning of a society that arises from the occurrence of hazards and leads to widespread human, economic or environmental damage and negative effects so that dealing with it is beyond the ability of the affected society and responsible agencies. Crisis management is the system of governing strategies, approaches, programs and actions that are done in a cyclical manner with the aim of predicting, preventing and reducing risk, efficient preparedness and response, and rehabilitation and recovery after accidents. (Islamic Consultative Assembly, 2019). Organizations and research institutes in the field of crisis management have each provided a specific model in this regard. These patterns sometimes differ in detail and appearance, but have many similarities in principle and structure. In the following, some of these models will be described and compared:

1. Crisis management model related to the comprehensive rescue plan of the country: This model is related to the comprehensive rescue plan of the country. A proactive model due to the consideration of stages such as preparedness and prevention, it also deals with the issue of development and renovation in the recovery phase.



F1. Crisis management model related to the comprehensive rescue plan of the country

2. Iceberg Crisis Management Model: One of the most popular and widely used models in the field of crisis management is the Iceberg model, which consists of four phases: prevention, preparedness, response and reconstruction. In this model, the water level is the moment of a crisis. The philosophy of this nomenclature is that in this model, the four stages of crisis management do not have the same weight. The two stages of prevention and preparedness at the base of the pyramid have a much larger share in the whole crisis management complex.

Crisis management is a set of coordinated efforts to reduce negative outcomes, prepare for accountability and reconstruct the results of risk (Nami et al., 2019). Crisis

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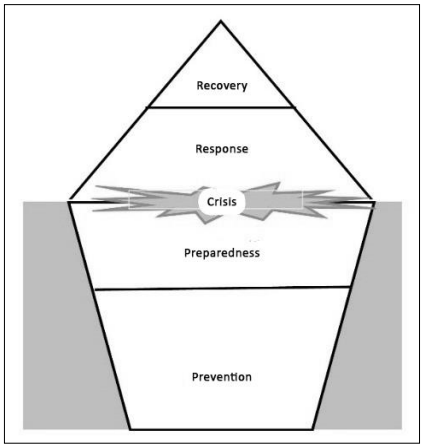
management is the knowledge of coping and responding to crises based on systematic observations of the crisis and analysis of its effects and outcomes to find tools to prevent crises from occurring, prevent and reduce their effects, as well as preparedness, rapid relief, rehabilitation and improvement. Efficiency in crisis management increases through mutual learning, coordination and inter-organizational cooperation and building trust between organizations involved in crisis management (Abdi Daneshpour et al., 2016). According to the literature and research background, it is concluded that the elements of crisis management include: crisis prediction phase, crisis preparedness phase, crisis response phase and post-crisis recovery phase.



F2. Iceberg Crisis Management Model (Abdolhamidzadeh, 2018)

Natural Disasters

A natural disaster is a serious disruption to a community or region that occurs because of a rapid event and results in death, injury, or damage to property or the environment, requiring a balanced and coordinated response by multiple actors and communities. Such a serious disturbance can be caused by any or a combination of natural hazards: fire, earthquake, flood, hurricane, hurricane, landslide, tsunami, meteor strike or tornado (Des, 2005).

Research Method

The research method is the same operational framework or search actions to achieve the research goal to test the hypothesis or pass the research questions. The selection of an appropriate research method and the continuation of its establishment in the whole process and research path is one of the strategic principles of scientific research (Barati et al., 2013: 88).

Stages of Research

In the first stage, a Conceptual Framework of Research is presented. In the second stage, a questionnaire was designed and in the third stage of the research, its reliability analysis was calculated based on the data collected from the respondents. In the next steps, based on the partial least squares method (pls), the research hypotheses are tested and the results are presented.

Conceptual Framework of Research: Effective Governance Structure of Crisis Response Networks

There is considerable debate about the appropriate governance structure in crisis response. Natural disasters require both network and hierarchical features. One of the challenges in crisis management is choosing the right governance structure for crisis management. A response that facilitates the need for centralized coordination among different respondents while maintaining the flexibility needed to adjust rapid interaction to changing circumstances. A structure that is neither fully integrated nor fully centralized. Instead, it is better to describe it as a flexible central peripheral structure. Transparency of performance in this structure is very important for the progress of work in the management of natural disaster networks (Novell et al., 2107). Each conceptual framework is the starting point and basis for conducting studies and research, as it identifies the variables of research and the relationships between them. According to the literature review and due to the novelty of this issue, the manner by which the components of network governance (inter-organizational cooperation, inter-organizational coordination and network cooperation results) affect the elements of crisis management (prevention, preparedness, response and recovery) is presented in Figure 3. In the analysis of research information, by structural equation method, this model will be examined in terms of reliability and

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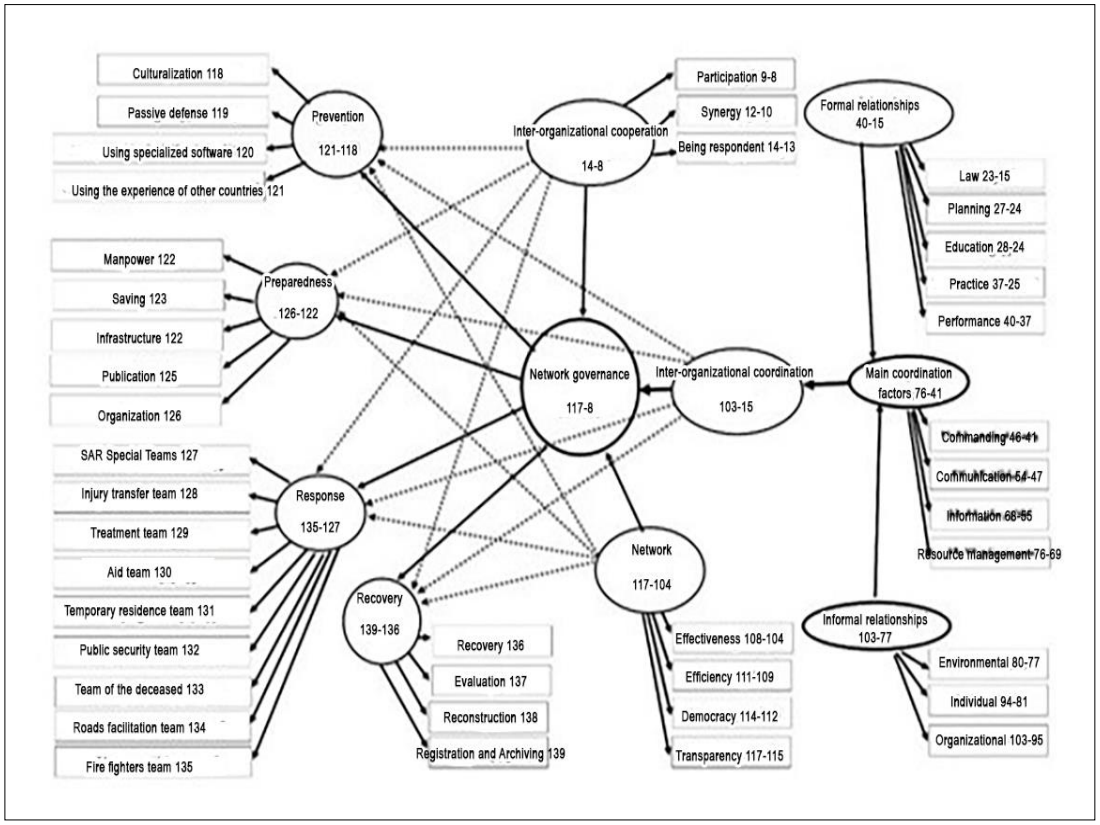
validity and significance test and the necessary results will be presented.



F3. The suggested model for the impacts of network governance on crisis management

In order to conduct the survey process, a questionnaire with two main sections was designed. In the first part, the questionnaire had 7 questions about the descriptive characteristics of the respondents, and in the second part, there was 132 questions about the status of independent and dependent variables of the research. The answers to these questions were designed based on 5-point Likert scale. Since the analysis of the research hypotheses and the proposed model were performed by the method of structural equations and factor analysis with pls software, the research questionnaire was first applied on the aforesaid model to prepare it for processing in pls (Figure 3).

Scope of Research

The statistical population of this research consists of the senior managers together with two levels of their successors in the 14 member workgroups of the provincial crisis management staff as well as the managers of provincial governorates in the province, which is a total of 226 people. The sampling method in this study was random stratified. The sample size was 140 using Morgan table and considering the number of members of the research community.

Reliability and Validity

Reliability is a necessary condition for validity. In other words, if a measure does not have reliability, it cannot show the true value of a phenomenon (Mohammad Beigi et al., 2014). Cronbach's alpha coefficient is one of the most common methods of measuring the reliability of questionnaires. To determine the reliability of the questionnaire, a sample of 19 people was selected and the questionnaire was sent to them and after completing, the data were entered into SPSS software, and Cronbach's alpha coefficient of different parts of the questionnaire was obtained as mentioned in Table 1 (Jahanbakhsh, 2003).

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Row	Title of questionnaire	Question No.	Cronbach's alpha coefficient
1	Interorganizational cooperation	8-14	0.66
2	Impediments for formal coordination	15-40	0.92
3	Main factors of interorganizational coordination	41-75	0.84
4	Impediments for informal coordination	76-103	0.94
5	Network cooperation results	104-117	0.91
6	Elements of crisis management	118-139	0.96

T1. Cronbach's alpha coefficient (reliability) of different parts of the questionnaire

Considering that the additional stages of the tests of this research were performed in smart pls software, the reliability or Cronbach's alpha coefficient of this questionnaire was also done through this software, which was confirmed by 96% and shows that this questionnaire will have the same results in the same condition. The reliability and validity of this research questionnaire was finalized after data collection using advanced statistical software including pls.

Data Analysis Method

Structural equation modeling can be considered as a combination of path analysis, regression and factor analysis methods. One of the salient features of this method is the possibility of calculating the direct, indirect and total effect as well as modeling the hidden variable (Gholami Fesharaki, 2017). This method can be used in situations where the sample size is small and the variables are not normal and does not provide model fit indicators for researchers. Given the number of samples in this study, which is 140, the right software for analysis is pls. According to Hear et al. (1995) in the first stage, using the method of partial least squares analysis, the model for measuring factors and dimensions is investigated, and in the second stage, using the method of least squares analysis, the relationships between the dimensions of the model are examined (Rotbei and Zare, 2015).

Analysis and Discussion

In this section, in order to prevent exceeding the number of words, the method of modeling is not explained and only the results of the research hypotheses are mentioned.

In order to test the research hypothesis, the model of the effect of network governance on the elements of crisis management was used. After performing the pls test of the algorithm and determining the regression coefficients, reliability and validity of the structure, Bootstrapping command was adopted to test the path coefficients in pls from. The results of Figure 8 and Table 2 regarding the effect of network governance on the elements of crisis management are as follows:

As can be seen from the model in Figure 4 and Table 2:

- The effect of network governance on crisis prevention was significant ($p < 0.001$) and ($t > 1.96$).
- The effect of network governance on crisis preparedness was significant ($p < 0.001$) and ($t > 1.96$).
- The effect of network governance on crisis response was significant ($p < 0.001$) and ($t > 1.96$).
- The effect of network governance on post-crisis recovery was significant ($p < 0.001$) and($t > 1.96$).

Therefore, the main hypothesis of the research, i.e., Network Governance has an effect on the elements of crisis management in natural disasters in the member organizations of the Kohgiluyeh and Boyer-Ahmad Crisis Headquarters, is confirmed. This result is the same with the studies of Comfort (2007), Novell et al. (2107) and Adel Rastakhiz (2016).

The second hypothesis of this research was: inter-organizational cooperation and its components have an effect on the elements of crisis management in natural disasters in the member organizations of the Kohgiluyeh and Boyer-Ahmad Crisis Headquarters. The effect of the inter-organizational cooperation model, whose reliability and validity were confirmed, on the elements of crisis management such as prevention, preparedness, response and recovery that were reliable, valid and significant in the path coefficients in pls, is presented in Figure 5.

As can be seen from Figure 5 and Table 3:

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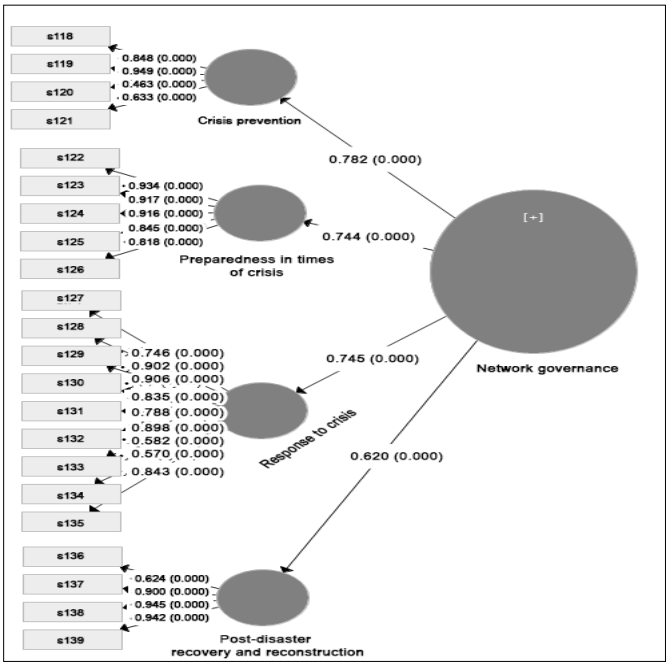
-The effect of inter-organizational cooperation on crisis prevention was significant (p <0.001) and (t> 1.96).
-The effect of inter-organizational cooperation on crisis preparedness was significant (p <0.005) and (t> 1.96).
-The effect of inter-organizational cooperation on the response phase was significant (p <0.001) and (t> 1.96).
-The effect of inter-organizational cooperation on the post-crisis recovery phase was significant (p <0.001) and (t> 1.96).

Therefore, the second hypothesis of the research is confirmed. This result is consistent with the results of the studies of Nohrstedt et al. (2018), Pramanik (2015) and Moein Najafabadi (1999).



F4. values and regressive coefficients of the effect of network governance on crisis management in pls

The model of the effect of network governance on the elements of crisis management T and P statistic values					
	Main samples (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**Static (T)**	**P values**
Network governance -> Preparedness	0.7441	0.7499	0.0282	26.3531	0.0000
Network governance -> Recovery	0.6197	0.6285	0.0362	17.1067	0.0000
Network governance -> Response	0.7453	0.7523	0.0250	29.7724	0.0000
Network governance -> Prevention	0.7816	0.7903	0.0215	36.3450	0.0000

T2. p and t values of the model of the effect of network governance on the elements of crisis management in pls

P value path coefficient					
	Main samples (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**Static (T)**	**P values**
Network governance -> Preparedness	0.234	0.240	0.104	2.245	0.025
Network governance -> Recovery	0.337	0.358	0.057	5.949	0.000
Network governance -> Response	0.312	0.327	0.080	3.891	0.000
Network governance -> Prevention	0.316	0.329	0.052	6.033	0.000

T3. Significance test of the model of the effect of inter-organizational cooperation on the elements of crisis management in pls.

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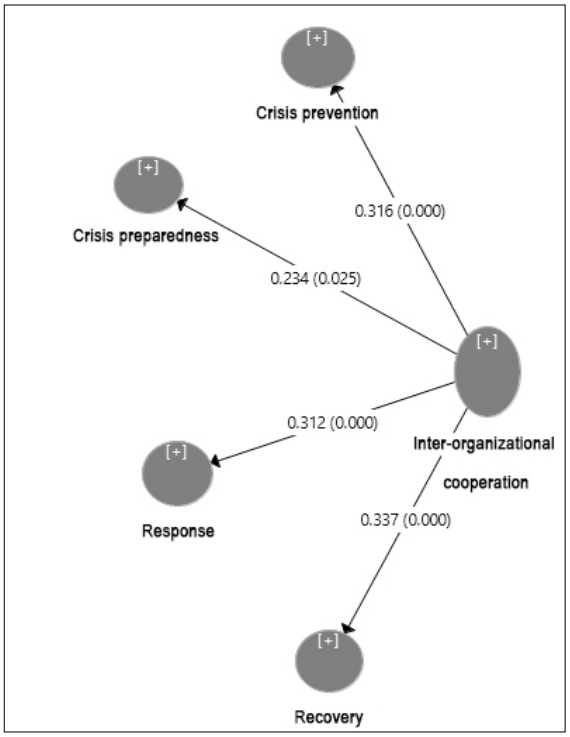
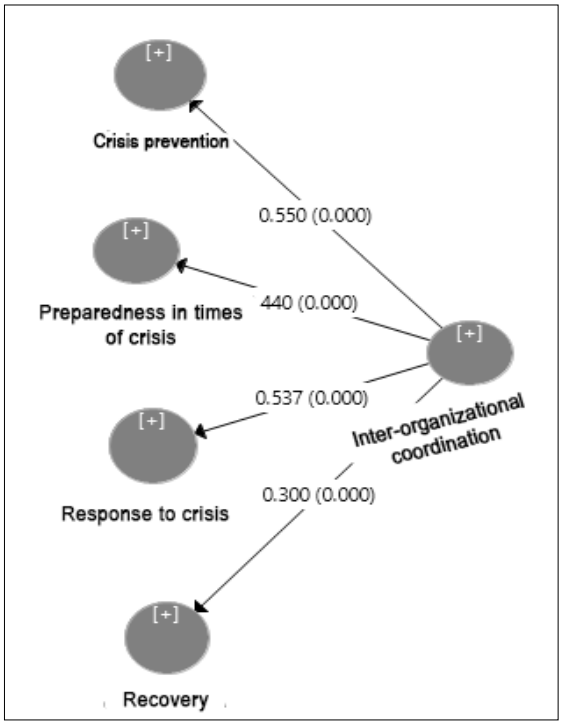
The third hypothesis of the research is: inter-organizational coordination and its dimensions have an effect on the elements of crisis management in natural disasters in the member organizations of the Kohgiluyeh and Boyer-Ahmad Crisis Headquarters. To examine the accuracy of this hypothesis, the authors examined the effect of inter-organizational coordination model, whose reliability, validity and significance of path coefficients were confirmed, on the elements of crisis management in pls. The result is presented in Figure 6.

As Figure 6 and Table 4 show,

- The effect of inter-organizational coordination on crisis prevention was significant (p <0.001) and (t> 1.96).
- The effect of inter-organizational coordination on crisis preparedness was significant (p <0.001) and (t> 1.96).
- The effect of inter-organizational coordination on the crisis response phase was significant (p <0.001) and (t> 1.96).
- The effect of inter-organizational coordination on the post-crisis recovery phase was also significant (p <0.001) and (t> 1.96).



F5. Impact of inter-organizational cooperation on crisis management elements in pls



F6. Significance test (p values) of the effect of inter-organizational coordination on the elements of crisis management in pls

T static and p value					
	Main samples (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**Static (T)**	**P values**
Network governance-> Preparedness	0.453	0.464	0.058	7.777	0.000
Network governance -> Recovery	0.306	0.328	0.065	4.729	0.000
Network governance -> Response	0.545	0.564	0.029	18.842	0.000
Network governance -> Prevention	0.542	0.554	0.049	11.148	0.000

T4. Significance test of the effect of inter-organizational coordination model on the elements of crisis management in pls

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Therefore, the third hypothesis of the research is confirmed. This result is consistent with the studies of Dragan (2019) and Abdi Daneshpour et al..

The fourth hypothesis of the research is: the results of the governance network and its dimensions have an effect on the elements of crisis management in natural disasters in the member organizations of the Kohgiluyeh and crisis prevention was significant (p <0.001) and (t> 1.96).

- The effect of network governance results on crisis preparedness was significant (p <0.001) and (t> 1.96).
- The effect of network governance results on the crisis response stage was significant (p <0.001) and (t> 1.96).

Boyer-Ahmad Crisis Headquarters. For this purpose, the study examined the effect of the governance network results model, whose reliability, validity and significance of path coefficients were confirmed, on the elements of crisis management. The results are as mentioned in Figure 7.

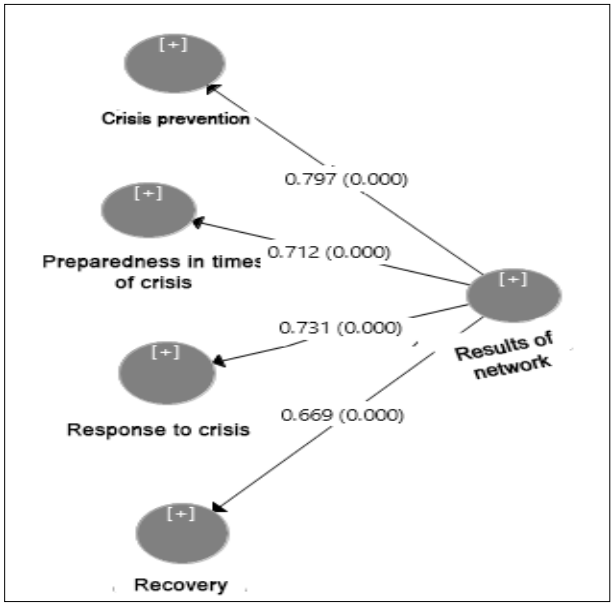
As Figure 7 and Table 5 show:

- The effect of network governance results on
- The effect of network governance results on the post-crisis recovery phase was also significant (p <0.001) and (t> 1.96).

Therefore, the fourth hypothesis of the research is confirmed. This hypothesis, while confirming the results of the studies of Daghati et al. (2019), is consistent with the results of the studies of Adel Rastakhiz (2016).

P value structure					
	Main samples (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**Static (T)**	**P values**
Network governance -> Preparedness	0.712	0.719	0.034	20.758	0.000
Network governance -> Recovery	0.669	0.676	0.034	19.715	0.000
Network governance -> Response	0.731	0.738	0.026	28.271	0.000
Network governance -> Prevention	0.797	0.805	0.028	28.945	0.000

T5. Significance test results of network governance results on crisis management elements



F7. Model of the effect of network governance results on the elements of crisis management in pls

Conclusion

Network governance has a positive relationship on the elements of crisis management. The most effective factor of network governance on the elements of crisis management are respectively as follows: crisis prevention (0.78), crisis response (0.75), crisis preparedness (0.74) and post-crisis recovery phase (0.62).

A high regression coefficient (above 60%) shows that there is a high positive relationship between network governance in natural disasters and crisis management. This high regression is due to the impact of network governance on the elements of crisis management. Therefore, it is necessary to use this management style in the management of natural crises in Kohgiluyeh-Boyer-Ahmad province.

The most effective interagency cooperation on the elements of crisis management was the recovery and reconstruction phase (0.34), the crisis prevention phase (0.32), the crisis response phase (0.31) and finally the crisis preparedness phase (0.23).

The most effective inter-organizational coordination on the elements of crisis management is the crisis prevention phase (0.55), crisis response phase (0.54), crisis preparedness phase (0.44) and post-crisis recovery phase (0.30.

The most influential results of the inter-organizational cooperation network on the elements of crisis management are the crisis prevention phase (0.80), the crisis response phase (0.73), the crisis preparedness phase (0.71) and the post-crisis recovery phase (0.70).

Practical Suggestions

In connection with the first hypothesis, the implementation of network governance in natural crisis management of Kohgiluyeh and Boyer-Ahmad province is suggested. The importance of this style of management is as follows: crisis prevention, crisis response, crisis preparation and finally the recovery phase.

In connection with the second hypothesis, we suggest the balancing of inter-organizational cooperation protocols, structures, systems, cultures and values of the institutions involved in cooperation, formulating joint agendas, providing synergy for the organizations participating in the cooperation process, training the staff of executive bodies of the provincial crisis management to work closely with each other while maintaining organizational identity. To do this, interorganizational cooperation as a factor of network governance shall be applied in the different stages of crisis management, especially in: recovery phase, prevention phase, response phase and finally preparation phase.

In connection with the second hypothesis, the following actions are suggested: achieve the all-encompassing method that has the greatest impact on inter-organizational cooperation, involve the civil society and inter-group and use their active cooperation and form network relations and interactive negotiations with the department. Public and private sectors should be strengthened in the management of natural disasters in Kohgiluyeh and Boyer-Ahmad Province in order to improve the solution of social problems and the integration of the sector.

Regarding the third hypothesis, considering that among the main factors affecting inter-organizational coordination, the information component and resource management, have the greatest impact on inter-organizational coordination of members of the Kohgiluyeh Crisis Management Headquarters, in order to increase coordination between the member organizations of the provincial crisis headquarters, the following is suggested: create a comprehensive database of programs, organize news and information during the crisis, create a common operational image between the member organizations of the management headquarters by continuously informing about the crisis situation and increasing the distribution of trans-situational knowledge (knowledge, capabilities and resources of other organizations), among the member agencies of the Crisis Management Headquarters; provide centralized and appropriate guidance of resources before and in the time of crisis and prevent the waste of

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resources and facilities by other member organizations of the Crisis Staff.

In connection with the third and fourth hypotheses, the following is suggested: achieve network governance and the most effective method in natural crisis management in Kohgiluyeh and Boyer-Ahmad province. This network is a network of coordinated, efficient and effective organizations that are transparent and democratic in decision-making.

In relation to the third hypothesis, the following is suggested: prevent the decrease of coordination between the member organizations of the provincial crisis management headquarters, prevent the breaking of legal boundaries in times of crisis, prevent the application of personal and non-expert opinions in the field of crisis management, increase the awareness of managers and members of the provincial crisis management staff about the effectiveness of training and its impact on optimal crisis management, increase the awareness of managers and commanders of the provincial crisis management staff about the collective work and collective wisdom during crises, strengthen the program-oriented view among managers and crisis management commanders, increase the belief and awareness of managers and crisis management commanders, establish interagency interactions and collaborations and send information from individuals and operational teams present in the crisis scene to their organization and pay attention to the needs of other organizations. The mentioned information should be included in the agenda and action of Kohgiluyeh and Boyer-Ahmad Province Crisis Management Headquarters in Natural Crisis Management.

In relation to the fourth hypothesis, in order to increase the quality of general management of different working groups of Kohgiluyeh and Boyer-Ahmad Province Crisis Headquarters in terms of transparency in the inter-organizational cooperation network and network governance in the field of natural crisis management, the following is suggested: provide easy access to information and decisions of the provincial crisis headquarters. This should be on the agenda and practice of the Kohgiluyeh and Boyer-Ahmad provincial crisis management headquarters in natural crisis management.

In relation to the fourth hypothesis, in order to increase the quality of general management of different working groups of Kohgiluyeh and Boyer-Ahmad Province Crisis Headquarters in terms of democracy in the inter-organizational cooperation network and network governance in the field of natural crisis management, the following is suggested: Citizens and people's forces (such as Basij), should cooperate for better management of natural disasters and crises and create cooperation between government and non-governmental organizations and people's forces in the field of natural crisis management. This should be also mentioned in the agenda and observed in the action of Kohgiluyeh and Boyer-Ahmad Crisis Management Headquarters In the management of natural crises.

In relation to the fourth hypothesis, in order to increase the quality of general management of different working groups of Kohgiluyeh and Boyer-Ahmad Province Crisis Headquarters in terms of effectiveness and realization of network governance in the field of natural crisis management, the following is suggested: provide managerial stability of managers and crisis liaisons of organizations and increase the various member organizations of the crisis staff and the cooperation and coordination between the member organizations of the Crisis Staff in changing environments and different crises.

References

- Abili Khodayar, Faraji Dehsorkhi Hatem, Shateri Karim, Yuzbashi Alireza. Investigating the relationship between social capital and the tendency to innovate in the staff of the University of Tehran. Teaching and learning research. 2019; 1 (45): pp. 81.
- Alvani, Seyed Mehdi. 2009. Good governance of a network of civil society activists. Journal of Development and Transformation Management, 1 (2009): 5-1.
- Barati, Hajar; Arizi, Hamidreza; Barati, Azar; Sarhangi, Kamran and Ranjir, Hamidreza. (2013). The effect of organizational justice and organizational climate on anti-production behaviors. Organizational Culture Management, Volume 11, Number 4, pp. 88.

[DOI: DOI: 10.22034/40.173.75]

- Behmanesh, Davood and Kargar, Ahmad. (2017). Presenting a theoretical model of inter-organizational coordination in strategic management of natural crises. Journal of Strategic Knowledge Interdisciplinary Studies. Seventh year, No. 27, 1396, pp. 102-71.
- Bikdeloo, Fahimeh and Rahnour, Farajullah. (2017). Assessing inter-organizational coordination and identifying the factors affecting it in public organizations. Management and Development Process, No. 2 (30), pp. 4 and 9.
- Teymouri, Ebrahim, Fesharaki, Mehdi and Baziar, Afshar. (2011) Modeling Inter-Organizational Relationships: A Study of the Impact of Relationship Factors on the Formation of Participatory Structure. Management Research in Iran. 15 (3)
- Jahanbakhsh, Ismail. (2003). Simple guide to using statistical tests in scientific research using spss. 43
- Deghati, Adeleh; Yaqubi, Noor Mohammad; Kamalian, Amin Reza and Dehghani, Massoud. (2019). Presenting a model for the development of network governance stages using a meta-combined approach. Government Management, 11 (2): pp. 212-209.
- Rotbeie, Saina and Zare Ravasan, Ahmad. (2015). Assess the relationship between the use of information communication tools and youth depression. Journal of Information Technology Management Studies, Fourth Year, No. 13, pp. 124-127.
- Salehi, Ismail. (2006). Coordination mechanism in crisis management. National Disaster Preparedness and Control Plan in collaboration with the United Nations Development Program (UNDP) and the Ministry of Interior, Faculty of Environment, University of Tehran. The Second International Conference on Comprehensive Crisis Management in Natural Disasters. https://civilica.com/doc/12323
- Adel Rastakhiz, Seyedeh Elahe and Zarei, Massoud. (2016), Crisis management based on network-based approach. Journal of Crisis Prevention and Management Knowledge, 6 (3), pp. 211-212.
- Alikhani, Reza. Ali Ahmadi, Alireza and Rasouli, Mohammad Reza. 2019. Behavioral factors affecting the design of network governance model in the field of health care: a systematic qualitative review. Management strategies in the health system. 4 (1): 70-67.
- Abdul Hamidzadeh, Bahman. 2018. Crisis management in industrial units. Tehran, Andishehsara Publications. Fifth Edition. Pp. 10, 20 and 69-122.
- Abdi Daneshpour, Zohreh. Fallahi, Alireza and Moradi, Dariush. (2016). Analysis of inter-organizational relations in crisis management in Isfahan. Bi-Quarterly Journal of Crisis Management, No. 9, pp. 25 and 29.
- Gholami Fesharaki, Mohammad. (2017). Structural equation model and its application in psychological studies. Clinical Psychology and Personality Psychology. Volume 16. Number 1, Consecutive 30, pp. 265-253.
- Gouchani, Mohammad Mehdi; Hosseinpour, Davood; Mahmoudzadeh, Ibrahim; Alvani, Seyed Mehdi; Firoozabadi Seyed Abolhassan (2017), Network Governance Model with Emphasis on the Development of Open Innovation Processes in Cyber Security Research Institutions ◦ Volume 11, Number 4, Serial Number 38, pp. 33-56.
- Islamic Consultative Assembly, 1398. Crisis Management Law. Pp. 4-1.
- Mohammad Beigi, Abolfazl. Mohammad Salehi, Narges and Gol, Mohammad Ali. (2014). Validity and reliability of various tools and methods for measuring them in applied research in health. Journal of Rafsanjan University of Medical Sciences. Volume 13 Number 12, pp. 1153-1170.
- Research Center of the Islamic Consultative Assembly. 2016. A review of the concept of network governance. Office of Government Fundamental Studies. Pp. 25-10.
- Moien Najafabadi, Ibrahim. (1999). A collection of practical booklets in the field of strategic change management, concepts and principles of organizational cooperation. Pp. 4-17.
- Monavarian, Abbas, Abbas Nargesian and Atefeh Hosseini Makarem. (2019). Designing a network governance model in Tehran Municipality. Scientific Quarterly of Economics and Urban Management, 7 (3), pp. 123-109.
- Nami et al., (2019). Earthquake and crisis management. Green Olive, First Edition, pp. 172.
- Yazdani Zazrani, Mohammad Reza. 2012 (Kajar, 2005, p. 125) A study of the conceptual relationship and the impact of governance on public policy. Quarterly Journal of International Relations Research, Volume 1, Number 4, Summer 2012, pp. 142-109.
- Antivachisa, N.A., & Angelisb, V.A. (2014). Procedia - Social and Behavioral Sciences. Network Organizations: The Question of Governance. International Conference on Strategic Innovative Marketing. Social and Behavioral Sciences 175, p: 584 – 592. Available online at www.sciencedirect.com
- Comfort.l,k. (2007). Inter-Organizational Design for Disaster Management: Cognition, Communication, Coordination, and Control. Graduate School of Public and International Affairs, University of Pittsburgh, Pittsburgh, USA. JSEE: Spring and Summer 2007, Vol. 9, No. 1, 2 / p: 60 &70.

[DOI: DOI: 10.22034/40.173.75]

- Department of Emergency Services (DES). (2005). Disaster Management Strategic Policy Framework. P:7-12.
- Drăgan, R.B. (2019). Communication and Coordination in Crisis Management. Master Thesis Radboud University Nijmegen Faculty of Management Sciences Department of Public Administration. p. 15-32.
- Nohrstedt, D. (2018). Networking and Crisis. Management Capacity: A Nested Analysis of Local-Level Collaboration inSweden. American Review of Public Administration. 2018, Vol. 48(3), p: 232–244. DOI: 10.1177/0275074016684585. journals.sagepub.com/home/arp
- Nowell, B. Steelman, t. K. Velez, A and Yang, Z. (2017). The Structure of Effective Governance of Disaster Response Networks: Insights From the Field. American Review of Public Administration. p:1 –17 permissions: sagepub.com/journalsPermissions.nav DOI: 10.1177/0275074017724225 journals.sagepub.com/home/arp.
- Pramanik, R. (2015). Interorganizational Collaboration In Crisis Response Management: Exploring The Conditions For Improving Collaborative Behaviour Across Organizational Borders. Division of Risk Management and Societal Safety, Faculty of Engineering, Lund University.

[DOI: DOI: 10.22034/40.173.75]