Study of the Effect of Ecological Knowledge of State Managers on Natural Crisis Management: A Case Study of Roshtkhar Township in Iran

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ABSTRACT

Natural disasters have been recognized from ancient times as the most destructive and devastating factors for human beings, society and the environment, creating crisis and making the crisis management a challenging task. Wise planning and efficient crisis management can prevent many controllable natural disasters. Since a little research has been conducted about the role of the ecological knowledge of state managers on crisis management and natural disasters on one hand, and no comprehensive and well-formulated strategy done in this field on the other hand, the present paper by the goal of studying the effect of ecological knowledge of state managers on natural crisis management in Roshtkhar Township reviews the fundamentals of integrated crisis management and strategies of intellectual schools of knowledge management presenting a framework depicting the role of ecological knowledge in development of the four phases of integrated crisis management (prevention, preparedness, response and recovery). With respect to the nature of this research, we have used questionnaire to study the subject. Sample was included 40 managers and directors of the state-run offices and organizations directly involved in crisis management. The results of the research involving one-sample T-Test showed that there is a significant difference between the 3/28 mean state of the ecological knowledge of the managers and the theoretical mean of 3 in probability level of 0/05. Therefore, it can be asserted that the ecological knowledge state of the managers does not have a desirable level. Also a review of the relationship between the ecological knowledge of the managers and crisis management of natural disasters – developed through Pearson Correlation Test - showed that the total correlation coefficient in standard error of less than 0/01 is equal to 0/886. This means that in view of the managers, high ecological knowledge is influential in crisis management.

Keywords: Crisis management, Ecological knowledge, Natural disasters, Roshtkhar township

INTRODUCTION

Today, one of the major concerns of man is the long-lasting ecological changes including seasonal and annual climatic ups and downs as well as the changes resulting from human activities. Understanding ecological conditions in a region and ecological forecasting can play a key role in crisis management process. One of the major requirements of the economic and social development plan of any region is understanding the ecological conditions indeed, because it plays an important role in all stages of the planning, implementation and productivity stages of all economic and social activities. Meteorology services and ecological information can reduce the production costs, boost productivity, and prevent material losses and social hazards.

Research Article, Acta Biologica Indica 2015, 4(1):84-95

pISSN 2319-1244, eISSN 2279-0160

The experience of crises and natural disasters in Iran and the world has shown that although organizations, institutions, relief workers and organs, and NGOs have gained sufficient and required preparedness for on-time presence and action in crisis situations and disaster scenes, but lack of well-trained managers having sufficient knowledge on crisis management have made them feel feeble and uncertain to face the natural disasters [1].

So far, no book or paper has been released on studying the importance of the ecological knowledge of the executive managers in management of natural crises, but many studies in connection with the subject of natural crises and crisis management have been conducted domestically and internationally, including the following. Liu and Associates (2009) in an article entitled "Interpreting Chinese Executives' Perceptions of Crisis Management" have made an interpretation of the viewpoints of 22 senior managers with crisis management groups using questionnaires from the viewpoint of four aspects (causes, consequences, caution and coping). Hansen and Associates (2008) in a study entitled "Innovations in Climate Risk Management" have studied the impacts and consequences of crisis management in reducing damages resulting from climatic conditions on agriculture and livelihood of the villagers. Najafpour [2] in an article entitled "Role of Ecology in Environment Planning and Management (Emphasizing on Iran)" has come to the conclusion that regarding the situation of Iran on arid ring of earth, aridity and drought are two inevitable realities of climatic conditions in Iran without which any planning and farsightedness will be doomed to failure.

Farahani and Khemri (2010) in an article entitled "Evaluation of the Role of Disaster Management in Reducing Impacts of Natural Disasters from Popular Point of View in Rural Areas, Case Study: Adimi Rural Area" have studied the disaster management process in reducing impacts of drought and sandstorm in view of people living in Adimi Rural Area. They have come to the conclusion that there is no appropriate capacity making for disaster management in the area under study. Darvishzadeh Borujeni (2010) has studied the designing a crisis management framework based on knowledge management (in earthquake crisis). In this research, he has referred to the role of knowledge management in development of four phases of comprehensive crisis management (prevention, preparedness, response and recovery). Pourhosseini [3] has made a pathological study of performance and cooperation among the organizations responsible for the crisis management. He has concluded that with respect to the dependencies and the existing relations among the responsible organizations in crisis management, the inter-organizational cooperation will be of high significance.

Therefore, this paper studies the fundamentals of comprehensive crisis management model with the aim of studying the effect of ecological knowledge of state managers on natural crisis management in Roshtkhar Township. The paper, then, presents a framework that shows the role of ecological knowledge of the managers in the development of the four phases of comprehensive crisis management (prevention, preparedness, response and recovery). We investigate a scientific and logical answer to the questions of the paper: Is there any relationship between the ecological knowledge of the Roshtkhar state mangers and the management of natural disasters?

Regarding the research statement and by virtue of the importance and necessity of the subject of the research, the goals of this paper are as follows: identifying the factors influencing the vulnerability of the crisis management in the organizations in charge of natural disaster management in Roshtkhar; evaluating the level of ecological knowledge of Roshtkhar state managers on natural disaster management and reducing the damages concerned, and identifying the weaknesses of the organizations and state offices in Roshtkhar in connection with crisis management.

MATERIALS AND METHODS

The methodology in this paper is a descriptive-analytical one based on the library sources and surveys done. Focusing on the principal goal of the research and the hypotheses, we provided a questionnaire and distributed it among the state managers in Roshtkhar involving in organizations responsible for crisis management. The main data were collected in field work and in questionnaires applying Lickert Scale. The population of this research were included all 40 senior managers working in the organizations and offices in charge of the crisis management in the township of Roshtkhar. Being limited the research population, the total of them were studied. The data collected by questionnaires were analyzed using SPSS in order to calculate the degree and quantity of the linear relationship between independent variables (ecological knowledge of the managers) and the dependent variables.

Ecological change is one of the most important environmental challenges in modern world. Global warming and the ecological changes arising from human activities and industrialization of the communities are major environmental problems that have undesirable effects on the life of the human beings and animals. Although during the past decades and in the light of advances of human knowledge, the scientists have scientifically found out that how natural disasters occur. They have also studied the consequences of natural disasters. Man prevents or resist against these natural mishaps. In the majority of cases man lacks required knowledge for precise and scientific forecasting on the moment of eruption and intensity of these disasters. It is after the occurrence of these disasters that man applies scientific ways to analyze them [4]. The following concepts have been considered in this paper.

Ecology Concepts

Definition of Ecology

To understand the definition of ecology, we will first define weather condition. Weather condition is the qualitative and quantitative values which determine the atmosphere state at a particular place and time. These are called meteorological parameters: some main quantities such as pressure, temperature, moisture, rainfall, etc. Therefore, the definition of climatic condition from a place to another and from a moment to another is a subject of time and place. On the contrary, in a certain place, ecology means the mean state of the quantities specifying the climatic conditions apart from their occurrence. Ecology, indeed, means the mean of relatively long-term atmospheric conditions that is one of the important elements forming our living environment [5].

Ecological Change

By ecological change we mean the change in mean climatic conditions at a certain time or space. In another definition, the change in ecology means the difference between the mean quantities of the indices or ecological data taking place outside the normal limits of natural ecological changeability [2].

Ecological Changeability

The term “ecological changeability” refers to the fluctuations or abnormal changes in ecological elements that happen in a specific time period, i.e. month, season or year in contrast to the normal mean in a long-term period of time. It is difficult to distinguish ecological changes from ecological changeability, especially in severely serious ecologies. In more simple words, we can say that ecological changes refer to the fluctuations outside the normal ecological changeability that may have various reasons [2].

Meanings of Natural Disaster

Definition of Natural Disasters

Any sudden incident that causes weakening and destruction of economic, social and physical capacities such as losses to the life and property, destruction of infrastructures, reduction in employment opportunities in the society, is called a natural disaster [6]. Of the lucid examples of this we can refer to earthquake, storm, flood, draught, natural blights, volcano, fire in the forests, and atmospheric phenomena.

Types of Natural Disasters

The natural disasters can be classified based on their origins as the following: (1) The disasters coming from climatic factors such as storms (hurricane, blizzard, tempest); (2) Disasters caused by the changes on the land surface such as avalanche, landslide, etc.; (3) Disasters coming from the tremors or displacement of tectonic plates such as earthquake, volcano, etc.; (4) The last type of natural disasters can be introduced as unexpected events or accidents with non-human origin and they are usually classified as the consequences of the other natural disasters such as fire, destruction of buildings, natural accidents, pollutions, etc.

Natural Disasters and Sustainable Development

Natural disasters are one of the major obstacles to sustainable development, i.e. economic, social and urban development. If the intensity of the disaster is great, the national development plan will face more problems. This is because of that the majority of human civilizations and communities have been destroyed by natural disasters. Man has increased the natural disasters by unwise and mismanaged use of natural resources. This has increased the intensity and the number of these disasters. A glance at the history of natural disasters proves this claim.

Natural Disasters in Roshtkhar Township in the Two Last Decades

During the last 20 years, Roshtkhar has suffered natural disasters like flood, earthquake, frost, pests, draught, storm, and tempest that have imposed losses to life and property.

Crisis Management Concepts

Crisis

Crisis is a serious disorder in the status of a society or a community causing extensive damages to man, economic resources, or the environment that exposes the society or community to the risk of compatibility with or violation in use of its resources. A crisis is a function of the process of risk probability. Crisis results from the combination of dangers, vulnerability situations, insufficient capacities, and lack or shortage of provisions for potential reduction in negative results of the risk probability.

Crisis Management Definition

Crisis management includes the system and profession of applying technological knowledge, planning, and management to react the unexpected disasters. It is clear that in the absence of

appropriate scientific and practical management in confrontation with unexpected events, the losses to the life and property will be highly increased. In other words, crisis management means a series of executive activities, management and political decision making depending on various stages and all levels of crisis in line with saving lives, reducing calamities and damages which prevent any obstacle to the course of social life, production and services, maintaining communications, environmental protection, and finally recovery and reconstruction of ruins.

Crisis Managers Duties

The major duties of crisis management team include the followings: (a) Planning for prevention and reduction of the effects of disaster and gaining preparedness to confront the disaster; (b) Attracting public participation for preventing activities, reduction the effects, preparing and reacting to the disaster; (c) To organize or create organizational structures concerning crisis management; (d) To direct preventing activities, reduce the effects, prepare, face and reconstruction, and (e) Supervision and control of crisis management activities.

Crisis Management Working Group

The National Disaster Management Organization was established for integrated management system in policymaking, planning, coordinating and integrity of activities in executive and research fields, to inform intensively, supervision on various stages of crisis management as well as reorganization and reconstruction of the disaster-stricken zones, to apply all facilities and capacities of: the ministries, institutions, governmental and public companies, state-run banks and insurance companies, military and police forces, NGOs, Islamic city and village councils, municipalities, public institutions, organizations under the authority of the Supreme Leader, enforced military in case of the delegation of authority by the Leader. All the above-mentioned are utilized to ideally use of national, regional, and local capabilities in confrontation with natural disasters and unexpected disasters.

Geographical and Human Specifications

Roshtkhar Township is located in northeast Iran, 200 km off the Shrine City of Mashhad. It is bounded on the west by Zaveh and Torbat Heidariyeh, on the east and southeast by Khaf and on the south by Gonabad. As large as 4360 sq km, the city is located at 59 degree and 37 minutes and 30 seconds eastern longitude and 34 degree and 58 minutes and 23 seconds northern latitude. The township has a hot and dry weather and according to 2011 census it is home to 58606 people. The city has two districts: Central District and Jangal District.

RESULTS AND DISCUSSION

The information and data on the ecological knowledge of the state managers in Roshtkhar have been extracted from questionnaires. The degree of skill on ecological software, the degree of familiarity with climatic and ecological conditions in their area of responsibility, and the degree of familiarity with natural disasters with main of 4.03 has shown the best results among the indices. On the contrary, the lowest results have been related to holding seminars and tutorial workshops for updating ecological knowledge for planning, and evaluating annual credit for holding meetings, and training to improve readiness of the organizations for crisis management with the mean of 2.4 and 2.7 respectively (Table 1). Considering data given in the table 2, the mean of 3.28 does not show a

desirable level of ecological knowledge for the managers and it is slightly above the mean level. Observing the data inserted in table 3, from among the indicators studied for crisis management in the stage of prevention, the study of existing facilities and installations in view of safety and removing the faults index with the mean of 3.94 have allocated the maximum value. However, in view of the managers, indicators such as studying and reviewing the experiences and initiatives of other countries in connection with management of crises coming from ecological phenomena, and providing of risk plans in various fields in cooperation with other organizations with the mean of 2.77 and 3.17 respectively have not been of desirable state. Totally, it can be said that the impact of prevention stage by the total mean of 3.41 has been above mid-level. Preparedness in view of the disaster involves the activities which are carried out for gaining readiness and enhance the community capacities through: (a) In line with forecasting and giving preliminary warnings in the early moments of disaster where serious warning is possible, (b) Reacting to disaster, compatibility with its impacts, or reorganization and time scheduling for saving actions and transport of the injured people, as well as other post-disaster rescue activities.

Table 1. The tasks and objectives of the general directorate for disaster management.

The four steps	The task of 4 steps	Fourteen steps related working groups	Responsibility
Preventing group	1. Preventing the accidents 2. Evaluating the risk level of the society	Earthquake hazards Working group, slipping layers of earth, buildings	Roads and Urban Development
Preparation group	1. Collecting the information 2. Planning, organizing 3. Establishing management structures 4. Education 5. Providing resources and facilities 6. practicing and maneuver	Committee of non-governmental organizations The Education and Information work group Relief and Rescue Committee and Public Education	Political and Security Affairs Broadcasting Red Crescent population
Dealing Group	1. Information and Alerts 2. Search - Rescue 3. Health and cure - Medical Emergency 4. providing Security 5. Transport and Communications 6. Burial Actions after the incident in order to restore normal situation to the region Damaged areas and restore physical, psychological and social damage to the normal state	Working Group on Communication Health and Cure Committee Drought, frost and agricultural risks committee Transportation Committee, Lifeline, weather disasters and storms Security committee The Working Group on floods and marine risks, electricity, water and sewage	Telecommunication company Medical sciences Agriculture ministry Road and urban construction Political and Security Affairs Regional water company
Reconstruction and rehabilitation	Actions after the incident in order to restore normal situation to the region Damaged areas and restore physical, psychological and social damage to the normal state	Insurance Committee, reconstruction and rehabilitation Housing Committee	Development Assistance Housing Foundation

Table 2. The state of climatic science of managers of Roshtkhar town.

Rate	Items	Very good	Good	Average	Weak	Too weak	Mean
1	Proficiency in software ecology	9	22	8	1	0	4.03
	Continuous information on the status of regional climate change	4	21	10	5	0	3.54
3	The relationship between academic degree with organizational posts	5	9	11	12	3	3.03
4	Attitude Vision of the Islamic Republic of Iran in 2025 to manage crisis	1	25	9	5	0	3.6
5	The status of equipment of crisis room and climatic information in the organization	3	11	19	7	0	3.2
6	The knowledge of weather and climate responsibility	14	18	5	3	0	4.03
7	The knowledge of weather and climatic in the region of their responsibility	0	7	14	11	8	2.4
8	Studying booklets, books and scientific papers related to climatology to update knowledge	2	16	15	7	0	3.3
9	Determining the organizational structure and classification of activities and trained staff in crisis management by the organization	3	14	13	5	5	3.1
10	Providing a comprehensive plan for achieving new solutions and reducing damages in the region of their responsibility	1	15	14	7	3	3.1
11	Planning and estimating the annual credit for conferences and training to strengthen preparedness for crisis management	1	10	14	10	5	2.7
12	Planning to upgrade the level of preparedness and the operational synergies through holding Maneuvers	0	14	15	4	7	2.83
13	Analysis of the data of natural disasters occurred, in order to use the database and reviewing future plans	1	16	10	8	5	3.14
14	The status of documentation of the occurred cases and presenting the collected	5	14	12	5	4	3.17
15	Understanding the natural disasters and their causes and possible damages caused by natural disasters in the related field	12	19	6	2	1	4.03
16	Reviewing and evaluation of training needs and identifying priorities for short- and long-terms in organizational levels about natural disasters	5	18	14	1	2	3.6
17	Studying and evaluation of work experiences of other countries in the field of natural disasters and localization	2	12	15	7	4	2.97
18	The status of collecting data and climatic information to create a specialized database and disaster management in the organization	3	14	12	4	7	2.91
19	Access to organizations and networks of information and warnings to reduce and control the effects of natural hazards in the area	4	16	15	4	1	3.4
20	Collection and documentation of educational and professional activities related to the management of natural disasters and notify the authorities	7	15	12	4	2	3.4

Table 3. The managers point of view about crisis management (prevention phase).

Rate	Items	Very good	Good	Average	Weak	Too weak	Mean
1	Providing guidelines for the maintenance of facilities and reducing natural disasters	2	21	11	3	3	3.46
2	Coordination and follow-up in the field of identification and notification of atmospheric phenomena	3	19	11	1	5	3.37
3	Planning and ensuring about the collection of climate data	2	19	14	0	5	3.34
4	Reviewing and studying the experiences and practices of other countries in accordance with the crisis caused by atmospheric phenomena	0	6	22	8	4	2.77
5	Presenting basic training to people associated with natural disasters related to the field of organization	4	14	13	7	2	3.31
6	Assessment of needs and priorities in line with the objectives of the organization	0	24	12	4	0	3.54
7	Supplying and updating the standards and regulations and safety guide lines	3	19	10	4	4	3.34
8	Developing encouraging programs safety observance	5	16	11	5	3	3.46
9	Communication measures and supervision in order to comply with technical and safety rules in construction	6	19	7	8	0	3.63
10	Monitoring and tracking the use of a variety of insurance and credit facilities associated with natural losses	13	18	10	6	2	3.4
11	Reviewing the existing facilities in terms of safety and deficiencies	7	22	9	1	0	3.94
12	Preparation of risk projects in various sectors in cooperation with other organizations	1	15	15	7	2	3.4
13	Developing strategies for stabilization of facilities and places at risk and construction of building methods	3	18	13	4	2	3.14
14	Ensuring compliance with safety standards and pathology and presenting proposals	3	22	12	2	1	3.7

With respect to the data shown in table 4, from among the factors studies in terms of the views of the managers on crisis management at the stage of preparedness, the indicator of determining the structure of crisis management and setting the duties for the personnel had the highest mean i.e., 5. On the contrary, indicators such as localization of experiences of other countries for crisis management had the minimum value i.e., of 2.71.

Regarding the data inserted in table 5, from among the indicators concerning the crisis management (response stage), the indicator of the on-time presence of managers in the disaster scene had the highest mean of 4.14. On the contrary, invitation and identifying NGOs in line with crisis management showed the minimum mean of 2.8.

Among the data mentioned in table 6, of the indicators mentioned on the views of managers on crisis management (recovery stage), the indicator concerning treatment and rehabilitation of manpower, formulation of a comprehensive plan for fundamental reconstruction gained the highest

mean of 3.77 and 3.74 respectively. On the contrary, control and making assurance on applying materials, equipment and safety standards in reconstruction gained the mean of 3.23. Presenting a report of working group related to the National Disaster Management Organization and following up the required information in designing, implementation, supervision and maintenance of installations gained the minimum mean of 3.17.

Table 4. The managers' opinions about crisis management (preparation phase).

Rate	Items	Very good	Good	Average	Weak	Too weak	Mean
1	Holding seasonal maneuvers in the field of preparedness to deal with natural disasters	3	15	9	7	6	3.06
2	Determining the structure of crisis management and staffs' responsibilities	3	20	8	4	5	5.00
3	Following up and ensuring of the provision of trainings related to natural disasters	1	20	12	4	3	3.37
4	Localizing the experiences of other countries to deal with crises	1	9	14	11	5	2.71
5	Creating a comprehensive system of early warning and notification of immediate and accurate at the time of accident	0	13	14	11	5	2.71
6	Estimation of the resources (facilities and equipment) required in the event of natural disasters	2	18	11	5	4	3.24
7	The division of labor structure and categories of peoples' activities	3	20	11	5	1	3.46

Regarding the results of the correlation test through Pearson Approach showing a meaningful level of less than 0.05, the presupposition of the lack of relation between the two variables is rejected. Considering the positive correlation coefficient, we come to the conclusion that there is a relationship between sensitivity toward the crisis and doing safety activities. In order to study the relationship and correlation between the ecological knowledge of state managers in Roshtkhar, four stages of crisis management through Pearson correlation coefficient were used. The results of correlation coefficient indicate that there is a correlation between desirability of the ecological knowledge of the managers with the four stages of crisis management in order of prevention (0.981), preparedness (0.983), response (0.983), and recovery (0.990). This correlation is meaningful because the probability rate of all stages is 0.001. This value is desirable because it is less than 0.05. Therefore, there is a significant relationship between the ecological level of managers and the stages of crisis management.

Totally, the results of correlation coefficient indicate that there is a correlation between the level of ecological knowledge of the managers and the crisis management (0.886) and this correlation is meaningful ($p>0.05$) since the probability level is 0.001. This result is desirable because it is below the 0.05. Therefore, the hypothesis of the research is approved, i.e. there is a significant relationship between the level of ecological knowledge of the managers and crisis management. Some information on ecology, climate, changeability of them have been so greatly institutionalized in our daily life – from the daily weather forecast to the seasonal forecast – that we have forgotten the results of analysis on the study of the ecological findings. Today, the five-day forecast is as precise as the two-day forecasts of 25 years ago.

Table 5. The managers' opinion about crisis management (the phase of dealing with).

Rate	Items	Very good	Good	Average	Weak	Too weak	Mean
1	Calling and identifying all NGOs to manage the crisis	3	8	14	9	16	2.8
2	Combining expert advisory committee among NGOs and determining their duties	3	9	12	6	6	2.86
3	Identification and coordination of celebrities to draw people's participation in crisis management	9	22	5	3	0	4
4	Understanding the general conditions of the region in the field of natural disasters	6	18	11	3	2	3.57
5	Helping to raise people's awareness and safety culture	3	20	14	2	1	3.51
6	Studying and determining appropriate solutions to climatic situation	0	19	14	43	3	3.31
7	Preparing a comprehensive plan for the management of natural disasters in the organization	2	13	12	9	4	2.94
8	Create a database of personnel and equipment needed in natural disasters	6	11	16	6	1	3.37
9	Coordination and planning to buy equipment and facilities needed to manage natural disasters	2	21	9	5	3	3.43
10	Providing all safety instructions during dealing with crisis for official staff and volunteers	2	17	11	9	1	3.26
11	Coordination and planning to observe all safety precautions in dealing with the crisis not to harm any body	0	22	11	2	5	3.34
12	Recording and documenting experiences of crisis management	5	11	15	6	2	3.26
13	Guiding and monitoring the rapid restoration of vital facilities and optimal utilization of the existing network	2	21	9	5	3	3.49
14	Initial estimates of the damages to facilities and equipment	6	23	9	1	1	4.14
15	The managers' attendance at the scene of disaster	16	13	8	0	2	4.14

Seasonal forecasts have been increasingly precise too. This outcome is due to the advancements made in remote measuring apparatus and technology such as satellite, advancement in the sciences and extraordinary development in computer capacity. Scientific progress in meteorology and ecology in the last 50 years was indeed one of the most important progresses in the history of human being. The ecological knowledge that has been founded in recent decade is a valuable source for making decisions on ecological matters. Many evidences - from global warming to the reduction in size of the natural glaciers, from the rise in sea level to the natural events- indicate certainty of ecological change which is chiefly due to human intervention in natural process especially greenhouse gases release that has an increasing trend. On the other hand, awareness and understanding make us certain that there is still a chance for reducing ecological change to a controllable level. Today, only a few people disagree with the issue of ecological change and

undertaking the responsibility for it in view of the coming generations. Ecological understanding can and should support the decisions in all levels to help better decision-making (Table 7).

Table 6. The managers' opinions about managing crisis (reconstruction phase).

Rate	Items	Very good	Good	Average	Weak	Too weak	Mean
1	Creating capacity for the experts' attendance in the area of disaster	6	16	13	5	0	3.57
2	Coordination and prioritization of related organizations to attend the scene	4	18	14	4	0	3.57
3	Identifying and taking advantage of all the capabilities to deal with the incident	5	21	9	3	2	3.63
4	Informing people about the crisis conditions to cope with the crisis	6	22	4	7	1	3.63
5	Action for the elimination of trauma and disease and improving soil and water resources caused by crisis	3	19	12	4	2	3.43
6	Controlling and ensuring about the usage of materials and safety standards in reconstruction	3	14	16	2	5	3.17
7	Following-up the treatment and rehabilitation of human resources	6	21	10	2	1	3.77
8	Obtaining and reporting the group work related to the Crisis Management Committee	0	17	16	4	3	3.23
9	Monitoring the use of specialists and skilled in reconstruction	5	16	14	2	4	3.37
10	Assessment and analysis of the reasons for the destruction and damages to installations and presenting proposals	2	20	10	4	4	3.37
11	Developing a comprehensive plan for the reconstruction of basic technical and professional	9	19	7	4	1	3.74

Table 7. Pearson correlation among Roshtkhar managers' scientific knowledge with managing crises.

Criteria		Climatic knowledge	Prevention	Readiness	Dealing with	Rebuilding
Climatic knowledge	Pearson correlation	1	.981##	.983##	.990##	.981##
	Sig.(2-tailed)		.000	.000	.000	.00040
	N	40	40	40	40	40
Prevention	Pearson correlation	.981##	1	.988##	.991##	.992##
	Sig.(2-tailed)	.000	.000	.000	.000	.000
	N	40	40	40	40	40
Readiness	Pearson correlation	0.983##	.988##	1	.987##	.982##
	Sig.(2-tailed)	.000	.000	.000	.000	.000
	N	40	40	40	40	40
Dealing with	Pearson correlation	.990##	.991##	.987##	1	.990##
	Sig.(2-tailed)	.000	.000	.000		.000
	N	40	40	40	40	40

According to the geographical situation of Roshtkhar and the potential and practical dangers, as well as the scope of the danger, the shortcoming in the facilities of the crisis management organizations and departments is clear. One of the main missing rings in the key guidance of the activities related to the crisis and coordination in connection with crisis management is the lack of integrated crisis management. The results of the research with respect to the one-sample T-Test showed that there is a significant difference between the mean of 3/28 of the ecological knowledge of the managers and the theoretical mean of 3 in probability level of 0/05 and the impact of the four stages of crisis management. Also, comparing the factors studied in connection with crisis management and considering the findings of the research, the recovery stage had the best status mean of with 3.5. The stages of prevention, response, and preparedness have marked desirable situation in view of the managers with the mean of 3.41, 3.40 and 3.28 respectively.

Table 8. Pearson correlation coefficient for managers' climatic science with crisis management.

Criteria	Correlation	Probability
The impact of managers' climatic knowledge and crisis management	.886	.001

Therefore, this paper presents the following suggestions: (1) Priority of the factors affecting management of natural crises, (2) Considering the experience gained in previous disasters in recent years in Iran and in Roshtkhar, also the complexity of the crisis management, the existence of a standard system of management on crisis is inevitable, (3) The system should be standardized enough to enable the social workers from different organizations and offices to act jointly well in different situations within a joint management structure, (4) Policymaking and necessitating agreements in use of public services and equipment at the disposal of the state-run organizations and the organizations dealing with crisis management, (5) Creating a system of evaluating the procedure of the management of the dangers decrease resulting from natural disasters for reformation of its functional performance, and, (6) Determining the responsibilities and the duties of the teams precisely and clearly.

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