HRMARS
Exploring Intellectual Capital

The Analysis of Factors Affecting People's Preparedness in Dealing with Natural Disasters in 2013 in Rasht-Iran

Seyed Ali Hosseini (Ph.D)

Assistant Professor of Department of Geography, Payame Noor University, Po Box 19395-3697
Mail:hosieniali@pnu.ac.ir mob: 09111398761.Tehran. Iran

Roqieh Heydari (M.A)

Geography- Urban Planning, Payame Noor University, Rasht Branch, Guilan, Iran

Ali Hayati (M.A)

Farhangian University, Shahid Beheshti Campus, Zanjan, Iran

Abstract
The community preparedness to deal with natural disasters is the most important variable influencing the prevention and control of natural disasters on human settlements. It empowers local communities and creates an appropriate capacity for the reconstruction and returning to the original state. Since Rasht is in the earthquake zone with a high risk, considering this issue is very important. This study evaluated the ability of people in Rasht to respond quickly and effectively to incidents and deal with them. The main purpose of this study was identifying factors associated with the preparedness of people and analysis of their effectiveness. This study is a descriptive-survey research. According to the last census of Statistical Center of Iran, Rasht was selected as the population with 639,951 people in 2011. Based on the Cocrane method, 384 people were selected from five areas of Rasht. The research findings indicate that the amount of preparation is different on the basis of income, home ownership, age, education, gender, and marital status. In addition, factors such as education and participation level of people are effective in their preparation.

Keywords: natural disasters, preparedness, performance, attitude, the people of Rasht

Introduction
Preparedness is a series of policies and actions taken by the individuals before the accident for the settlement of food reserve, water, medical supplies, temporary shelter, energy, response strategies, crisis response exercises, and etc.(TFQCDM / WADEM ,2002 : 44).

Figure 1: Components of Preparedness Management in the Disaster (Jahangiri, 2009: 69)

Preparedness can minimize the confusion and chaos of disaster period. Everyone knows exactly what task has been given to him (Drabk and Hooatmr, 2004: 62). Therefore, the preparation before the event and immediate action to restore the original state is two important principles of crisis management (Drabk and Hooatmr, 2004: 87).

The concepts of research
Natural disasters
According to the Sirinivas and Nakagawa (2008), natural disasters can affect not only the residents, but also it may have environmental impacts that can lead to other crisis in the future. Now, the emphasis is on the centrality of environmental concerns. Proper management of natural resources is needed for crisis prevention and reducing its effects.

Crisis
Crisis is a natural or non-natural event that dealing with it requires beyond the capabilities of local resources and neighboring communities, states, and national boundaries should help to solve problem(Schwenk , et al,2005:233).
Crisis Management
Crisis management is defined as the set of all measures taken to reduce the damage that occurs as a result of a risk and minimize the damage and recover quickly after a catastrophe (TFQCDM / WADEM, 2002: 52). Also, crisis management is defined as an integrated system using science, technology, management, and planning for dealing with disasters that kill many people, destroy or damage the property of the people, and disrupt social life (Drabk, 2004: 2).

Crisis management Order

Prevention, mitigation	Actions to prevent and reduce the risk to life and property
Preparedness	Planning for the worst case management
Response	Measures taken during the crisis
Retrieval Convalescence	Return to normal situation after the crisis Medical and scientific measures after the crisis

Figure 4: The Crisis Management order(Schwenk, et al, 2005: 235)

Effective preparedness in emergency situations requires planning; and proper planning is not possible without the participation and support of people (Drabk and Hooatmr, 2004: 124). Therefore, the emphasis of preparedness stage is on strengthening the capabilities and capacity building in the community. The first step is evaluating the knowledge, attitudes, and practices to provide a picture of the current status and analyze the training demands (JAHANGIRI, et al, 2010, 156). Using a community - oriented approach, the capacity of people to respond to emergencies caused by disasters will increase. This is possible through increased knowledge, improved attitudes, improved performance, enhanced access, and enhanced control through participation in various phases of disaster management cycle (Jahangiri, 2009: 46).The participation of community in all before, during, and after stages is necessary. But before the crisis, especially in the preparation phase is of major importance (Jahangiri et al, 2010: 14). The weaknesses in monitoring and enforcement of urbanization regulations, proximity to fault lines, tissue aging, and informal settlements are one of the main reasons for the increase in deaths and expansion of crisis in this city (Hosseini, et al, 2013: 77). Thus, disaster management system is necessary for dealing with natural and unnatural disasters. One of the notable researches in this area is the research of Jahangiri et al (2010) entitled A review of people participation in dealing with natural disasters in Khuzestan province. It suggested that promotion of community participation requires the change of managers views about the role and the type of public participation in dealing with natural disasters (JAHANGIRI, et al, 2010, 11).) In the study of disaster preparedness in India, Kangabam (2012) concluded that depending on the educational background, ethnic origins, and age, awareness of crisis is different among community members. This awareness can be increased and improved through a combination of social activities in the field of disaster preparedness, information technology, and partnerships communication between government, NGOs, and social organizations (Kangabam, et al, 2012). Phillips et al (2005) indicated the vulnerability variables that include income, gender, race, tradition, age, geographic location, home ownership, education, health, social status, and special needs. In addition, the presence or absence of resources such as health, education, and income shows the level of vulnerability (Phillips, et al, 2005). So based on the above, suitable educational programs should be developed for preparedness and dealing with disaster. These

programs should include activities that lead people to proper preparation to understand how to act at the time of or after the disaster in order to reduce losses and damage. Therefore, this study aimed to assess the preparedness of people in Rasht against natural accidents and disasters.

Research Methodology

This study is a descriptive-survey research. The required Information was collected by the researcher made tool through a stratified cluster sampling from five districts of Rasht. Considering the latest census of Statistical Center of Iran in 2011, from 639,951 people in Rasht, 384 people were selected as sample by Cochrane method. They were distributed in five areas of Rasht according to the population ratio and the required information was gathered. The research instrument was a questionnaire consisting of 42 questions in three sections including demographic data, attitudes, and preparedness. To check the validity of the study, questionnaires were given to academic experts. After modifications and corrections, the validity was confirmed. Cronbach's alpha was used to assess the reliability; Alfa 0.763 indicate the high reliability of the tool. It should be noted that for assessment of the reliability, the tool was piloted on a sample of 30 subjects. All data were analyzed using SPSS software at both the descriptive and inferential levels.

The study area

Rasht is one of the great cities of Iran. This city is at 49 degrees 36 minutes east longitude and 37 degrees 16 minutes northern latitude(51 :2011 Hosseini).It has a population of over 639,951 people. (Census of Population and Housing, 2011) With an area of about 10,240 hectares and 104 urban districts, Rasht is one of the most vulnerable cities of Iran in terms of crisis management planning and dealing with disasters such as earthquakes, floods, and snow (Hosseini, et al, 2013: 66).
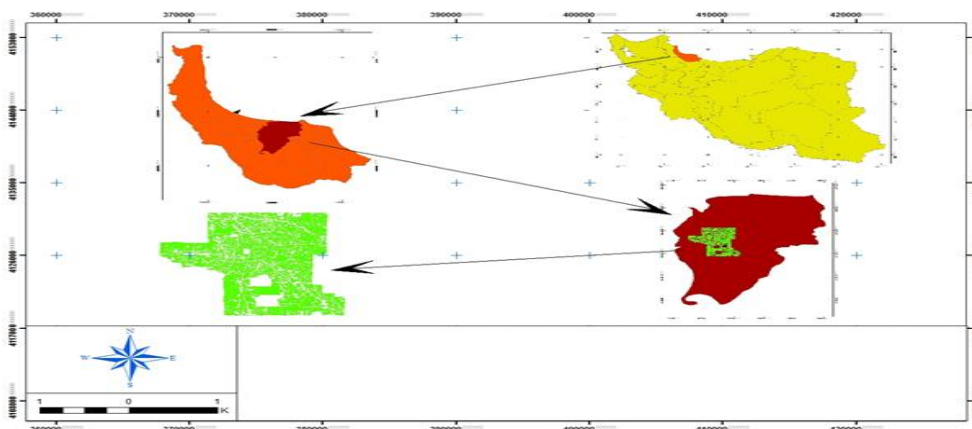
1: The location of the study area in the Gilan province and the country

Findings

A comparative analysis of the preparedness of people based on age, education, gender, and marital status

Table 1 - Comparison of the people preparedness based on gender

Gender	Number	Observed Mean	S.D	ESD	Value	F	df	Sig.
Male	208	16.1298	3.04832	21136.	315.	1.64	382	20.1
Female	176	16.0284	3.25213	24514.				

Table 2 –

Comparison of the people preparedness based on marital status

Marital Status	Number	Observed Mean	S.D	ESD	Value	F	df	Sig.
Single	151	15.7881	2.77995	22623.	1.33	8.22	382	00.4
Married	227	16.2291	3.36174	22313.				

Explanation and Description

Considering the relationship between related variables, Independent Samples Test was used to compare the preparedness of people in Rasht against natural disasters; the means of two groups (men and women) and (married and unmarried) has been compared. The test result is shown in the above tables. According to the above tables, the test is not significant about the gender; but the test is significant for marital status at below 0.01. Descriptive data show that observed mean in unmarried people is lower than married people. Because of this mean difference, the test has become significant. Regarding the above, researchers concluded that with over 99 percent of certainty, the amount of preparation in the people of Rasht against natural disasters is not different, based on gender; but it is different based on marital status. The results showed that married people are more prepared than unmarried people.

Table 3 - Comparison of Rasht people's preparedness according to age

Age group differences	Sum of Squares	df	F value	Sig.
B.G	474.744	3	12.834	.000
W.G	3300.590	380		

Explanation and Description

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (age groups), ANOVA test was used for analyzing it. The results are shown in the above table. According to the above output, the test is significant at below 0.01. With certainty over 99 percent, we can say there are significant differences between the age groups in terms of dependent variable (the amount of preparedness in people of Rasht). Also, TUKEY post hoc test and comparison of groups showed that in terms of dependent variable (the amount of preparation), older groups are more prepared than younger groups.

Table 4 - Comparison of Rasht people's preparedness according to income

Income group differences	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	580.920	3	193.640	7.196	.000
Within Groups	2798.746	104	26.911		

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (income groups), ANOVA test was used for analyzing it. The results are shown in the above table. According to the above output, the test is significant at below 0.01. With certainty over 99 percent, we can say there is a significant differences between the income groups in terms of dependent variable (the amount of preparedness in people of Rasht). Also, TUKEY post hoc test and comparison of groups showed that in terms of dependent variable (the amount of preparation), higher income groups are more prepared than lower income groups.

Table 5 - Comparison of Rasht people's preparedness according to family population

Family group differences	Sum of squares	df	F value	Sig.
B.G	193.288	2	10.279	.000
W.G	3582.045	381		

Explanation and Description

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (family population), ANOVA test was used for analyzing it. The results are shown in the above table. The results are shown in the above table. According to the above output, the test is significant at below 0.01. With certainty over 99 percent, we can say there is a significant differences between the income groups in terms of dependent variable (the amount of preparedness in people of Rasht). Also, TUKEY post hoc test and comparison of groups showed that in terms of dependent variable (the amount of preparation), large families are more prepared than families with lower population.

Table 6 - Comparison of Rasht people's preparedness according to education level

Education group differences	Sum of squares	df	F value	Sig.
B.G	841.187	5	21.674	.000
W.G	2934.146	378		

Explanation and Description

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (education level), ANOVA test was used for analyzing it. The results are shown in the above table. The results are shown in the above table. According to the above output, the test is significant at below 0.01. With certainty over 99 percent, we can say there are significant differences between the income groups in terms of dependent variable (the amount of preparedness in people of Rasht). Also, TUKEY post hoc test and comparison of groups showed that in terms of dependent variable (the amount of preparation), high educated people are more prepared than people with lower education.

Table 7 - Comparison of Rasht people's preparedness according to the type of house ownership

Ownership group differences	Sum of squares	df	F value	sig
B.G	22.944	2	1.165	. 313
W.G	3752.389	381		

Explanation and Description

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (education level), ANOVA test was used for analyzing it. The results are shown in the above table. The results are shown in the above table. According to the results, this test is not significant at any level. Therefore, there is no difference in terms of the amount of preparedness in people with rent, mortgage, and personal ownership.

Table 8 - Comparison of Rasht people's preparedness according to the job

Job group differences	Sum of squares	df	F value	sig
B.G	959.240	6	21.403	. 000
W.G	2816.093	377		

Explanation and Description

Since the differences in the dependent variable (preparedness of Rasht people) are affected by the independent multi-value variable (education level), ANOVA test was used for analyzing it. The results are shown in the above table. The results are shown in the above table. According to the above output, the test is significant at below 0.01. With certainty over 99 percent, we can say there are significant differences between the income groups in terms of dependent variable (the amount of preparedness in people of Rasht). Also, TUKEY post hoc test and comparison of groups showed that in terms of dependent variable (the amount of preparation), Self-employed people are more prepared than people in other occupations.

Table (9) - The relationship between the amount of preparedness in people and their training

Pearson Correlation		People`s education	People`s preparedness
People`s education	Pearson Correlation	1	. (** . 418
	Sig. (2-tailed)	.	. 000

	N	384	384
People`s preparedness	Pearson Correlation	(**.418	1
	Sig. (2-tailed)	.000	.
	N	384	384

Explanation and Description

The Pearson correlation coefficient was used to determine the relationship between the preparedness in people of Rasht and education. The data are shown in the above table. According to the table, public training has a direct and positive relationship with the amount of preparation. These findings can be interpreted such that the preparedness level increases by training.

Table (10) - The relationship between the amount of preparedness in people and their participation

Pearson Correlation		People`s participation	People`s preparedness
People`s participation	Pearson Correlation	1	.(**).675
	Sig. (2-tailed)	.	.000
	N	384	384
People`s preparedness	Pearson Correlation	(**) .675	1
	Sig. (2-tailed)	.000	.
	N	384	384

Explanation and Description

The Pearson correlation coefficient was used to determine the relationship between the preparedness in people of Rasht and participation. The data are shown in the above table. According to the table, participation of people has a direct and positive relationship with the

amount of preparation. These findings can be interpreted such that the preparedness level increases by increasing of people's participation in the execution and management planning.

Conclusion

According to the findings of study, the amount of preparation against natural disasters is not different based on gender; but it is different based on marital status. The married people are more prepared than unmarried people. Older groups are more prepared than younger groups; higher income groups are more prepared than lower income groups; large families are more prepared than families with lower population; high educated people are more prepared than people with lower education; there is no difference in terms of the amount of preparedness in people with rent, mortgage, and personal ownership; and Self-employed people are more prepared than people in other occupations. Also, other findings showed that there is a direct and positive relationship between training and participation of people and the amount of preparation. The findings are consistent with the research findings of Mishra et al (2009). They believe that preparedness of people against the disaster can be affected by factors such as age, marital status, number of children, home ownership, length of residence in the area, and previous experience of the crisis.(Mishra, et al, 2009). Also, Baker (2011) states that the level of preparedness in families is interconnected with issues such as income, home ownership, age, race, type of home, the media, education, gender, educational status of children, residence time in the region, social participation level of, and etc (Baker, 2011).

In their study, Jahangiri and colleagues (2010) concluded that housewives, pensioners, the unemployed individuals, residents of West, Center, and South of Tehran, elderly people, singles, people who are illiterate and low educated, and overcrowded households has not appropriate knowledge, attitude, and practice (Jahangiri et al, 2010).

However, the final result of this study showed that the amount of preparedness is different based on home ownership status, age, education, gender, and marital status. In addition, factors such as the education level and people's participation are effective in their preparation. According to the results, this research suggests the expansion of training in the field of relief and rescue to all sectors, increasing people's preparedness level against natural disasters, providing rules and regulations for crisis management to determine the status of people's participation for their more preparedness against natural disasters, attention to the lower strata of society in order to study whether the accepted programs are consistent with their specific needs, and increasing the confidence to the emergency plans and adapting with the programs.

References

AbbaszadehShahri, A., Foroozan, F., Vahidi, F., (2010) Nonlinear Analysisand evaluation of the responsetotheearthquakesiteinRashtcit*y.Construction Monthly,8(73), October, 2-9.*

 Baker, E. J., (2011) Household preparedness for the Aftermath of Hurricanes in Florida.Applied Geography, 31, 46-52.

Boss E, Ramasi S, Diprik J, & Batista F. *The management of risk taking probability due to the systemic and analytic crisis, Translated by Yavar B, Rahmani M, Mirtaheri M, &Mehrian F, Tehran, International University of Chabahar, 2010.*

Edrike, T., &Havatmer, G.J., (2004) *principles and practical guidance for residential governments, translated by the center of studies and planning in Tehran city,* Crisis management, Processing and City Schematization Co. Publication.

Hosseini, M., et al., (2008) *crisis management, Crisisprevention and management organization ofTehran*. NashreShahr Press, Tehran.

Hoseini SA, &Esmaiilzadeh H. *the analysis of cultural elements in the security of social environments. Science- Research Quarterly of Urban Studies, 2012; 3: 50-57Master Plan forthe city of Rasht(2007)*

Hosseini, S. A., Hosseini , O ., Hamghadam, N., Zahmatkesh, E., Delbari, S.,(2013). *Localization of Temporary Settlement Areas in the City of Rasht by Using Model of Multi-Criteria Decision Making (MCDM). INTERDISCIPLINARYJOURNAL OFCONTEMPORARY RESEARCH IN BUSINESS COPY RIGHT © 2013 Institute of Interdisciplinary Business Research 1215 MAY 2013 VOL 5, NO1,1215-1227.*

Hosseini, S. A., Hosseini, O., Hamghadam, N., Zahmatkesh, E., Delbari, S., (2013).*Indigenizing of response indexes in crisis management in Iran (case study: Rasht city).*singaporean journal of business economics, and management studies, Vol.1,No.12,139-121.

Jahangiri, K., Azin, S.A., Mohammad, K., RahimiForooneshani, A., &Montazeri, A., (2010) *the chosen strategies of people in getting informed and public education for preparation against earthquake: the analysis of the perspectives and expectations of Tehran's people.* Duration Quarterly, 10(1), 49-54.

Jahangiri, K., Azin, S.A., Mohammad, K., &RahimiForooneshani, A., (2010) *the analysis of some of the effective factors on the preparation of Tehran's people during an earthquake-2006.* Scientific Quarterly of Relief and Salvation, 13(3), 155-164.

Jahangiri, K., (2009) *Principles and fundamentals of disaster management*, 1[st]ed.Tehran: Iran's Crescent'S Scientific-Practical Supreme Education Institute.

Jahangiri, K., OstovaIzadkhah, Y., Azin S.A, &Jarvandi, F., (2010) *the analysis of the amount of public cooperation in repelling natural disasters in Khoozestan province: the officials' perspectives.* Scientific Quarterly of Relief and Salvation, 2(4), 11-20.

Kaji,A. H., Langford, V.,& Lewis, R. J., (2008). *Assessing hospital disaster preparedness: A comparison of an on-site survey, directly observed drill performance, and video analysis of teamwork*. Annals of Emergency Medicine, 52(3), 195-201.

Kangabam, R.D., P.C. P, Kangabam, M., (2012) *Disaster Preparedness among the Resident Community- A Case Study of Rajiv Gandhi University, Itanagar, India*.International Journal of Environmental Sciences, 2(3), 1632-1642.

Mishra, S., Mazumdar, S., &Suar, D., (2009) *Place attachment and flood preparedness.* Journal of Environmental Psychology, 30, 187–197.

Phillips, B. D., Metz, W. C., &Nieves, L.A., (2005) *Disaster threat: Preparedness and potential response of the lowest income quartile.* Environmental Hazards 6, 123–133.

Schwenk , m., Kluge ,S., &Jaroni , H.(2005). Toxicological aspects of preparedness and aftercare for chemical-incidents. Toxicology, 214 , 232–248.

S. A., Hosseini, O., Hamghadam, N., Zahmatkesh, E., Delbari, S., (2013).*(16). Analysis of Response Indexes in Crisis Management with Emphasize on phases of before, during and after Crisis (The Case of Study: Rasht City),*Universal Journal of Management and Social Sciences, Vol. 3, No.6, 83-61.

TFQCDM / WADEM: Health Disaster Management: Guidelines for Evaluation and Research in the "Utstein Style". Chapter 3: Overview and concepts. PrehospDisast Med 2002;17(Suppl 3):31–55.

Ziyari, K., ShabaniKouchesfahani, M., (2011) *Disastermitigationplanning in Rasht based on HyokoWorldConference(2015-2005).*