The Impact of Age on Flood Preparedness in Serbia

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Abstract

The aim of the study was to examine the effect of age on the preparedness of Serbian citizens to respond to a natural disaster caused by the flood in the country. Taking all Serbia's municipalities into account in which a risk of flooding persists, nineteen of them were selected randomly for the research in which, using a multi-stage random sample survey, 2.500 citizens in areas/households that are more vulnerable in relation to the hundred-year high waters or potential risk were interviewed. The research results indicated that there was a statistically significant correlation between the age of respondents and a number of variables associated with the preparedness of citizens to respond to the natural disaster. The research originality lies in the fact that in Serbia the research of examining the state of citizens' preparedness to respond to a disaster has never been conducted. The results can be used to create a strategy for improving the level of preparedness of citizens to respond to sudden environmental changes. The research indicated the way of Serbian citizens' response with regard to their ages in order to raise the preparedness to a higher level.

Keywords: Natural Disasters, Flood Preparedness, Citizen Preparedness, Age, Citizens, Serbia.

Introduction

Speaking about the territory of the Republic of Serbia, we can say that the degree of vulnerability of the population and their material goods are not uniform, but vary depending on the type of natural disaster and expected potential damage (Cvetković & Dragicević, 2014; Dragicevic et al., 2011; Dragićević et al., 2013). Floods and torrential floods are the most frequent phenomena of the "natural risks" in Serbia. Their frequency, intensity and diffusion across the territory make them a continual threat to an ecological, economic and social spheres (Ristić et al., 2012). The potential floodable area, for the waters of a return period of 100 years, cover the surface of 16000 km^2, affecting 500 larger settlements, 515 industrial objects, 680 km of railroads and about 4000 km of roads (Petković & Kostadinov, 2008: 31). The most vulnerable area is northern part of Serbia, where, in the coastal part of Danube River (specifically, Tisa, Tamiš and Sava), there are about 12900 km^2 of potentially floodable land.

The preparedness of citizens to respond to a natural disaster is affected by a large number of social and individual factors that can directly or indirectly affect the citizens to implement, take or devise measures of preparedness to respond effectively (Botzen, Aerts, & Van den Bergh, 2009; Cvetković et al., 2015; Cvetković & Stanišić, 2015; Momani & Salmi, 2012; Siegrist & Gutscher, 2006; Tomio, Sato, Matsuda, Koga, & Mizumura, 2014; Werritty, Houston, Ball, Tavendale, & Black, 2007; Zaleskiewicz, 2002; Цветковић, 2015a). Some studies have confirmed that senior citizens are better prepared to respond to natural disasters (Melick & Logue, 1985; Murphy, Cody, Frank, Glik, & Ang, 2009), have more knowledge (Cvetković, Ivanov, & Sadiyeh, 2015; Cvetković & Stojković, 2015) about natural disasters, but also take more seriously the consequences, due to their physical weakness. Sattler et al.(Sattler, Kaiser, & Hittner, 2000) in their study show that there is a positive correlation between age and the level of preparedness of the individual to respond to natural disasters. Specifically, they found that people of the average age show better response than younger citizens in such situations, while at the same time, they point out that more data about the readiness of senior citizens, over young ones are available. Heller et al. (Heller, Alexander, Gatz, Knight, & Rose, 2005) point out that elders are emotionally resilient to the effects of natural disasters, bearing in mind that they have previous experience and have learned that such events will end and people will survive. Baker (Baker, 2011) confirmed the connection between the ages and the level of preparedness for response at the level of significance of 5%. Namely, citizens between 40 and 70 years of age have a higher score readiness compared to younger and older population.

In a survey conducted in the United States, aged between 45 and 54 years of age recorded higher level of readiness to respond compared to citizens from 55 to 64 years of age and those from 35 to 44 years of age (FEMA, 2009). Also, the results of national research, suggest that persons between 18 and 34 years of age (54%) to a greater extent have stocks for natural disaster at work in relation to people between 35 and 54 years of age; People between 35 and 54 years of age usually discuss the household plan as a response to natural disasters, compared to the groups of people aged 18 to 35 and over 55 years; People older than 55 years of age are more familiar with local warning systems, evacuation routes, compared to those from 18 to 34 and 35 to 54 years of age; People aged 18 to 54 (67-74%) are willing to pass the time course of 20 hours than elders, and to participate in emergency exercises at the household level; People older than 55 (46%) do not take the recommended measures to improve readiness to respond to a natural disaster to a greater extent, in relation to younger population (36%); people younger than 54 indicate the lack of time as cause for not taking adequate measures of readiness; with the aging, the conviction that taking preparedness measures will not change the outcome significantly and hence this population of people do not take the trainings; the elders, as a reason for inaction readiness express their doubts about their own abilities; People aged 35 and over, increasingly indicate that they are already ready to respond to natural disasters in relation to those between 18 and 34 years of age.

Methodology and data

Study area

For realization of the study, some communities were selected with high and low risk of onset of lowland and flash flooding. The survey was conducted on the territory of a large number of local communities with different demographic and social characteristics to be generalized to the whole population in Serbia. The urban and rural communities in different parts of Serbia were selected. Specifically, the study was conducted in the following communities: Obrenovac, Šabac, Kruševac, Kragujevac, Sremska Mitrovica, Priboj, Batočina, Svilajnac, Lapovo, Paraćin, Smederevska Palanka, Jaša Tomić, Loznica, Bajina Bašta, Smederevo, Novi Sad, Kraljevo, Rekovac and Užice (Figure 1).

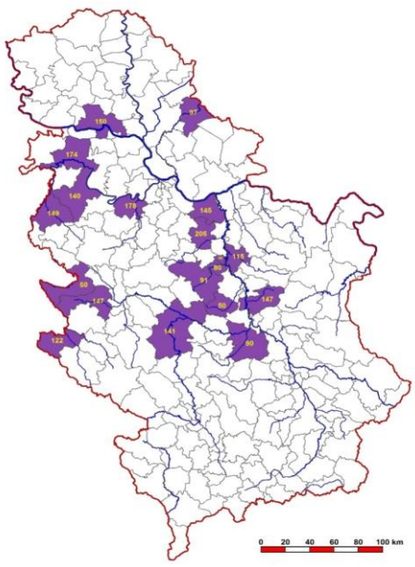

Figure 1: Overview of the respondents surveyed in local communities of Serbia

Study design with variables

Operationalization of the theoretical notion of preparedness to respond has given three dimensions that have been studied by identification of larger number of variables for each one. (Figure 2). *Perception of preparedness* includes variables on preparedness at different levels; barriers for raising the level of preparedness; variables on the expectation on help from different categories of people and organizations; assessment of effectiveness of first responders to respond. *Knowledge* through variables related to the level of knowledge was examined; flood risk map; knowing where they are and how to use them, willingness to train, willingness for methods of education, way to obtain the information about floods. In addition, the third dimensions, supplies relate to having oral/written plans, having supplies of food and water, a transistor radio, flashlight, hoe, shovel, hoe and spade, first aid kit, insurance.

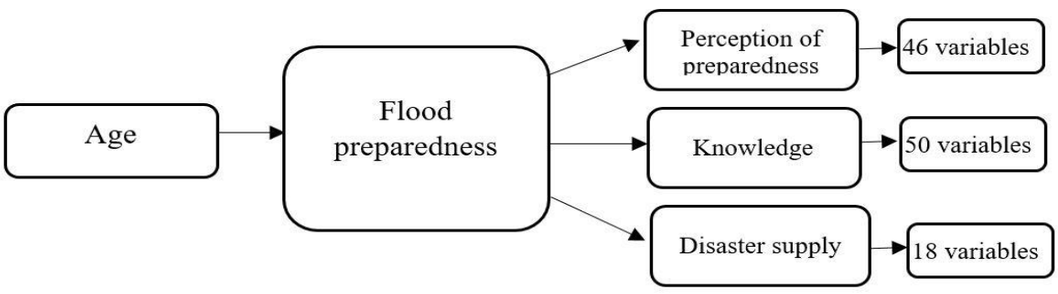

Figure 2: Study design

Sample

The population consists of all adult residents of local communities in which there are a risk to occur flash flood or flood caused by dam failure. The sample size has been adjusted with the geographical (local communities from all regions of Serbia will be represented) and demographic size of the communities themselves. It was randomly selected sample of 19 out of 150 municipalities and 23 towns and the city of Belgrade (Table 1). The research was undertaken in those areas that were most affected related to the amount of water or potential risk. In the survey, questioning strategy was applied to households with the use of a multi-stage random sample. In the first step, which refers to the primary causal units, parts of community in the research were selected. This process was accompanied by creation of map and determination of percentage share of each such segment in the total sample. In the second stage, streets or sections of streets were determined on the level of primary causal units. Each research core was determined as the path with specified start and end points of movement. In the next step, households in which the survey would be conducted were defined. The number of households is harmonized with population count of community. The final step referred to selection of respondents within households previously defined. The selection of respondents was conducted following the procedure of next birthday for adult members of household. The process of interviewing for each local authority was held three days in a week (including weekends) at different times of days. The study surveyed with 2.500 persons.

Table 1: The Number of the Respondents in Local Communities in the Study

Local community	Total square area	Localities	Population	Number of households	Number of respondents	Percentages (%)
Obrenovac	410	29	72682	7752	178	7,12
Šabac	797	52	114548	19585	140	5,60
Kruševac	854	101	131368	19342	180	7,20
Kregujevac	835	5	179417	49969	191	7,64
Sremska Mitrovica	762	26	78776	14213	174	6,96
Priboj	553	33	26386	6199	122	4,88
Batočina	136	11	11525	1678	80	3,20
Svilajnac	336	22	22940	3141	115	4,60
Lapovo	55	2	7650	2300	39	1,56
Paraćin	542	35	53327	8565	147	5,88
Smederevska Palanka	421	18	49185	8700	205	8,20
Sečanj – Jaša Tomić	82	1	2373	1111	97	3,88
Loznica	612	54	78136	6666	149	5,96
Bajina Bašta	673	36	7432	3014	50	2,00
Smederevo	484	28	107048	20948	145	5,80
Novi Sad	699	16	346163	72513	150	6,00
Kraljevo	1530	92	123724	19360	141	5,64
Rekovac	336	32	10525	710	50	2,00
Užice	667	41	76886	17836	147	5,88
Total: 19	10784	634	1500091	283602	2500	100

According to Statistical Office of Serbia, women have a share of 51.3% and men 48.7% in overall population. Observed in absolute numbers, of total 7,498,001 inhabitants, in Serbia live 3,852,071 women and 3,645,930 men. Similar as in the entire population, the sample has more women (50.2%) than men (49.8%). In 2014, the average age of respondents was 39.95 (men 40.9 and women 38.61). Observing the educational structure of citizens who are included in the survey sample, it also can be noted that majority of population (41.3%) has secondary/four years school. The smallest percentage of population has completed master (2.9%) and doctoral studies (0.4%). Marital status can be viewed from the aspect of legal marital status and factual marital status which also includes persons living in extramarital community. In the sample, married people account to 54.6%, widow/widower 3%, unmarried (single) 18.8%, engaged 2.7% and in relationship 16.9%. Table 2 gives a detailed overview of sample structure of surveyed citizens.

Table 2: Sample Structure of Interviewed Citizens

Variables	Categories	Frequency	Percentages (%)
Gender	Male	1244	49.8
	Female	1256	50.2
Age	18-28	711	28.4
	28-38	554	22.2
	38-48	521	20.8
	48-58	492	19.7
	58-68	169	6.8
	Over 68	53	2.2
Education	Primary	180	7.2
	Secondary/3 years	520	20.8
	Secondary/4 years	1032	41.3
	Higher	245	9.8
	High	439	17.6
	Master	73	2.9
	Doctorate	11	0.4
Marital status	Single	470	18.8
	In relationship	423	16.9
	Engaged	67	2.7
	Married	1366	54.6
	Divorced	99	4.0
	Widow / widower	75	3.0
Distance between	Up to 2 km	1479	59.2

household and river (km)	From 2 to 5	744	29.8
	From 5 to 10	231	9.2
	Over 10	46	1.8
Number of household members	Up to 2	63	2.5
	From 2 to 4	1223	48.9
	From 4 to 6	639	25.6
	Over 6	575	23.0
Employment status	Yes	1519	60.8
	No	883	35.3
Size of apartment / house (m^2)	Up to 35	128	3.9
	35-60	237	7.2
	60-80	279	8.5
	80-100	126	3.9
	Over 100	45	1.4
Income level - monthly	Up to 25.000 RSD	727	29.1
	Up to 50.000 RSD	935	37.4
	U to 75.000 RSD	475	19.0
	Over 90.0000 RSD	191	7.6

** 1 US Dollar = 111 RSD*

Instrument

For validity and reliability, studies of the data gathering instrument five steps were taken. In the first step, we determined some scales used for measuring the preparedness of citizens to respond to disasters in general or to specific natural disaster. So that, as a basis for the construction of a new instrument, we used 27 scales of preparedness for earthquake (Mulilis & Lippa, 1990), 17 checklist of preparedness for earthquake (Hurnen & McClure, 1997; Hurnen, 1997), 16 item checklist of Turner and his colleagues (Turner, Nigg, & Paz, 1986), 5 item checklist of McClure and his colleagues. Research conducted during 2007 on the territory of the United States was conducted using a questionnaire containing 55 questions which covered the following topics: severity/efficacy, awareness and perception on risk, stages of changes, personal responses to disasters, prevention, supplies, house plans, plans of local communities, training and exercises, volunteerism, inability, demography. In the second step we determined dimensions of preparedness (Цветковић, 2015b) of citizens to respond to the flood (Cvetković, 2014) as an actual natural disaster. The third step included the aforementioned operationalization of preparedness for response and deciding on the three basic dimensions (perception of preparedness to respond, knowledge and supplies). In the fourth step, we defined variables for each dimension (perceptions of preparedness to respond - 46 variables; knowledge - 50 and supplies - 18), then for each variable it was taken, adapted or specially designed question in instrument. The fifth and final step was carried out preliminary (pilot) study in Batočina with the aim of checking constructed instrument (its internal compliance of the scale, i.e. degree of relatedness of items of which it is composed, and whether instructions, questions and values on scale are clear).

Data analysis

Statistical analysis of collected data was performed by IBM's software package SPSS. Chi-square test of independence (χ^2) was used for testing of the connection between gender and categorical variables on perception, knowledge and having supplies and plans for a natural disaster caused by flood. On that occasion additional assumptions were completed about minimum expected frequency in each cell, which amounted to five or more. Assessment of impact level was performed by phi coefficient representing the correlation coefficient ranging from 0 to 1, where a higher number indicates a stronger relationship between the two variables. Koen criteria were used: from 0.10 for small, 0.30 for medium, and 0.50 for large effect (Cohen, 1988). For tables larger than 2 by 2, to assess the impact level it was used Cramer's v coefficient which takes into account the number of degrees of freedom. Accordingly, for R-1 or K-1 is equal to 1, we used the following criteria of impact size: small = 0.01, medium = 0.30 and large = 0.50. To test the connection between gender and continuous dependent variables on the perception, knowledge and having supplies and plans for natural disasters caused by floods, it was selected independent samples t-test. Before proceeding to the implementation of the test, we examined general and specific assumptions for its implementation.

Results and Discussion

The results of χ^2 showed a statistically significant relationship between age and the following variables: Preventive measures ($p = 0.000 < 0.05$, $v = 0.087$ – minor impact); field deployed ($p = 0.000 < 0.05$, $v =$ 0,140 – minor impact); detention center deployed ($p = 0.003 < 0.05$, $v = 0.087$ – minor impact); visiting to the flooded areas ($p = 0.001 < 0.05$, $v = 0.095$ – minor impact); raising of river levels ($p = 0.000 <$ 0.05, $v = 0.101$ – minor impact); media reports ($p = 0.000 < 0.05$, $v = 0.099$ – minor impact); level of preparedness ($p = 0.000 < 0.05$, $v = 0.096$ – minor impact). On the other hand, there was no statistically significant relationship with following variables: cash ($p = 0.13 > 0.05$); longlasting rain periods ($p =$ 0.22 > 0.05) (table 1). According to the obtained results, it was concluded that:

- Citizens between 18 and 28 years of age (24%) would engage in providing assistance to victims in the field, would engage in one of the detention centers for the reception of flood victims (7.4%);
- Citizens between 48 to 58 years of age (19.5%) point out that are still not ready, but intend to do so in the next 6 months, point out that are still not ready, but will begin preparing from next month (11.3%);
- Citizens between 58 to 68 years of age (23%) would have taken preventive measures; point out that their thinking about preparedness for responding to floods encourages a tour around the flooded areas, or raised water level (43%);
- Citizens aged over 68 (42.9%) state that their thinking about preparedness to response is encouraged by media reports; they point out that they do nothing to be ready to respond to floods (74.4%).

On the other hand, to lower percentage:

- Citizens between 28 to 38 years of age would have taken preventive measures (13.3%); point out that their thinking about preparedness to respond is encouraged by media reports (22.9%); point out that they are still not ready, or intend to do so in the next 6 months (9.9%);
- Citizens between 48 to 58 years of age would engage in providing assistance to victims in the field (12.5%); state that their thinking about preparedness to respond to floods encourages them to visit the flooded areas (13.4%);
- Citizens aged over 68 (24.4%) state that their thinking about preparedness to respond is encouraged by raising of the water level;
- Citizens between 58 to 68 years of age (6.2%) state that are still not ready, but will begin preparing starting from next month; state that they do not do anything in order to prepare to respond to floods (74.4%).

Table 1: Results of χ^2 of ages and of those variables on the perception of readiness to respond

	value	df	Asymp. Sig. (2 - sided)	Cramers V
Preventive measures	**34.020**	**10**	**.000***	**.087**
Money	8.327	5	.139	.060
Field deployed	**45.970**	**5**	**.000***	**.140**
Detention center deployed	**17.988**	**5**	**.003***	**.087**
Visiting to the flooded areas	**21.046**	**5**	**.001***	**.095**
Longlasting rain periods	6.887	5	.229	.054
Raising of river levels	**24.042**	**5**	**.000***	**.101**
Media reports	**22.467**	**5**	**.000***	**.099**
Level of preparedness	**106.435**	**25**	**.000***	**.096**

**** Statistically significant correlation – $p \leq 0.05$***

One-way ANOVA was employed to study the effect of the age of citizens to continuous dependent variables on the perception of readiness to respond. The subjects were divided by age into 6 groups (between 18 to 28 years of age, between 28 to 38 years of age, between 38 to 48 years of age, between 48 to 58 years of age, between 58 to 68 years of age and aged over 68). Homogeneity of variance test was used to test the equality of variances of the results obtained for each of the 6 groups. Taking into account the Levene Statistic Test results, the assumption of homogeneity of variance is not violated in the following variables: the willingness of the household; their own abilities; first responders; religious communities; of selforganized individuals; Citizens from the flooded areas; and efficiency of the police. For variable in which the assumption is violated, the table "Robust Tests of Equality of Means" and the results of two tests, Welch and Brown - Forsythe resistant to violation of the assumption of the equality of variance. For the sake of the study, the findings of Welch assumption have been used.

According to the results, there was a statistically significant difference between the mean values of those groups with the following continuous dependent variables: the willingness of households (F = 2.96, p = 0.004, eta-square = 0.0071 – minor impact); own abilities (F = 6.10, p = 0.000, eta-square = 0.0147 – minor impact); ISS (F = 2.28, p = 0.033, eta-square = 0.0056 – minor impact); religious community (F = 2.27, p = 0.034, eta-square = 0.0056 – minor impact); self-organized individuals (F = 6.48, p = 0.000, eta-square = 0.0157 – minor impact); police efficiency (F = 3.58, p = 0.002, eta-square = 0,0088 – minor impact); importance of taking precautions (F = 7.39, p = 0.000, eta-square = 0.0088 – minor impact); ISS (F = 6.03, p = 0.000, eta-square = 0.0056 – minor impact); not jeopardized (F = 6.07, p = 0.000, eta-square = 0.0142– minor impact); hve no time for it (F = 2.45, p = 0.028, eta-square = 0,0049 – minor impact); it's very expensive (F = 5.37, p = 0.000, eta-square = 0.0118 – minor impact); will not affect the safety (F = 4.51, p = 0.000, eta-square = 0.0106 – minor impact); not capable (F = 2.75, p = 0.016, eta-square = 0,0046 – minor impact); have no support (F = 9.44, p = 0.000, eta-square = 0.0137 – minor impact); cannot prevent (F = 3.50, p = 0.003, eta-square = 0.0069 – minor impact); household members (F = 4.86, p = 0.000, eta-square = 0.0143 – minor impact); neighbors (F = 2.99, p = 0.010, eta-square = 0.0067 – minor impact); non-governmental humanitarian organizations (F = 7.76, p = 0.000, eta-square = 0.0198 – minor impact); International humanitarian organizations (F = 2.65, p = 0.020, eta-square = 0.0067 – minor impact); police (F = 4.51, p = 0.000, eta-square = 0.0101 – minor impact); VSJ (F = 4.51, p = 0.000, eta-square = 0.0133 – minor impact); emergency service (F = 5.66, p = 0.000, eta-square = 0.0152 – minor impact); army (F = 3.36, p = 0.005, eta-square = 0.0085 – minor impact); awareness (F = 5.81, p = 0.000, eta-square = 0,0124 – minor impact); assistance would not be of any help (F = 5.35, p = 0.000, eta-square = 0.0132 – minor impact); others helped (F = 4.88, p = 0.00, eta-square = 0.0088 – minor impact); the job of state authorities (F = 6.53, p = 0.000, eta-square = 0.0109 – minor impact); the efficiency of fire-rescue units (F = 5.92, p = 0.000, eta-square = 0.0142 – minor impact); army efficiency (F = 3.16, p = 0.006, eta-square = 0.0066 – minor impact); efficiency of Headquarters for Emergency Situations (F = 3.19 p = 0.006, eta-square = 0.0012 – minor impact) (table 2).

Subsequent comparisons using Tukey HSD show that the recorded mean value state:

- The assessment of the readiness of households to respond to floods are statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 3.15$, $SD = 0.958$) and citizens between 38 and 48 years of age ($M = 2.92$, $SD = 0.962$). Citizens between 18 and 28 years of age showed the highest level of household readiness assessments to response, while the lowest was recorded among the citizens between 38 and 48 years of age;
- The assessment of the readiness of local community to respond to floods are statistically significant ($p < 0.05$) and each differs among citizens between 28 and 38 years of age ($M = 3.02$, $SD = 1.149$) and citizens between 48 and 58 years of age ($M = 2.77$, $SD = 1.11$). Citizens between 28 and 38 years of age showed the highest level of local community assessments to response, while the lowest was recorded among the citizens between 48 and 58 years of age;
- The assessment of security in own abilities to respond to floods are statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 3.08$, $SD = 1.04$) and citizens aged over 68 years of age ($M = 220$, $SD = 1.069$). Citizens between 28 and 38 years of age showed the highest level of security in own abilities assessments to response, while the lowest was recorded among the citizens aged over 68;
- The assessment of importance of taking precaution measures to respond to floods are statistically significant ($p < 0.05$) and each differs among citizens between 28 and 38 years of age ($M = 3.31$, $SD = 1.12$) and citizens aged over 68 ($M = 2.59$, $SD = 0.844$). Citizens between 28 and 38 years of age showed the highest level of importance of taking precaution measures to response, while the lowest was recorded among the citizens aged over 68;
- Highlighting the reasons “I think it will not affect the personal or the safety of my household” for not taking precaution measures on a personal level with the aim of reducing the financial consequences is statistically significant ($p < 0.05$) and each differs among citizens aged over 68 ($M = 3.33$, $SD = 2.89$) and citizens between 58 and 68 years of age ($M = 2.89$, $SD = 1.46$). Citizens aged over 68 showed the highest level of the indicated reason for taking precaution measures to response, while the lowest was recorded among the citizens between 58 and 68 years of age;
- Highlighting the reasons “It’s very expensive” for not taking precaution measures on a personal level with the aim of reducing the financial consequences is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.71$, $SD = 1.40$) and citizens between 38 and 48 years of age ($M = 2.51$, $SD = 1.37$). Citizens between 18 and 28 years of age showed the highest level of the indicated reason for taking precaution measures to response, while the lowest was recorded among the citizens between 38 and 48 years of age;
- Highlighting the reasons “I think I am I'm not capable for that” for not taking precaution measures on a personal level with the aim of reducing the financial consequences is statistically significant ($p < 0.05$) and each differs among citizens between 28 and 38 years of age ($M = 2.50$, $SD = 1.25$) and citizens between 38 and 48 years of age ($M = 2.70$, $SD = 1.18$). Citizens between 28 and 38 years of age showed the highest level of the indicated reason for taking precaution measures to response, while the lowest was recorded among the citizens between 38 and 48 years of age;
- Highlighting the reasons “I have no support from the local community” for not taking precaution measures on a personal level with the aim of reducing the financial consequences is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.92$, $SD = 1.35$) and citizens between 38 and 48 years of age ($M = 2.54$, $SD = 1.28$). Citizens between 18 and 28 years of age showed the highest level of the indicated reason for taking precaution measures to response, while the lowest was recorded among the citizens between 38 and 48 years of age;
- Highlighting the reasons “I cannot prevent the consequences in any way” for not taking precaution measures on a personal level with the aim of reducing the financial consequences is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.97$, $SD = 1.38$) and citizens between 68 and 78 years of age ($M = 2.23$, $SD = 1.11$). Citizens between 18 and 28 years of age showed the highest level of the indicated reason for taking precaution measures to response, while the lowest was recorded among the citizens aged over 68;
- Expectations of household members to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 4.40$, $SD = 1.15$) and citizens between 48 and 58 years of age ($M = 3.98$, $SD = 1.41$). Citizens between 18 and 28 years of age showed the highest level of household members assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Expectations of neighbours to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 38 and 48 years of age ($M = 3.66$, $SD = 1.22$) and citizens between 48 and 58 years of age ($M = 3.35$, $SD = 1.30$). Citizens between 38 and 48 years of age showed the highest level of neighbours assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Expectations of non-governmental humanitarian organizations to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.61$, $SD = 1.14$) and citizens between 48 and 58 years of age ($M = 2.21$, $SD = 1.17$). Citizens between 18 and 28 years of age showed the highest level of non-governmental humanitarian organizations assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Expectations of international humanitarian organizations to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.45$, $SD = 1.09$) and citizens between 48 and 58 years of age ($M = 2.30$, $SD = 1.14$).

Citizens between 18 and 28 years of age showed the highest level of international humanitarian organizations assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;

- Expectations of fire and rescue units to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 48 and 58 years of age ($M = 3.40$, $SD = 1.37$) and citizens between 38 and 48 years of age ($M = 3.78$, $SD = 1.15$). Citizens between 38 and 48 years of age showed the highest level of fire and rescue units' assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Expectations of emergency medical service to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 48 and 58 years of age ($M = 3.22$, $SD = 1.30$) and citizens between 38 and 48 years of age ($M = 3.58$, $SD = 1.14$). Citizens between 38 and 48 years of age showed the highest level of emergency medical service assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Expectations of army to assist in the first 72 hours of the occurrence of flooding is statistically significant ($p < 0.05$) and each differs among citizens between 48 and 58 years of age ($M = 3.37$, $SD = 1.44$) and citizens between 28 and 38 years of age ($M = 3.66$, $SD = 1.32$). Citizens between 28 and 38 years of age showed the highest expectation level of army assistance, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Evaluation of awareness on potential flood risk during floods is statistically significant ($p < 0.05$) and each differs among citizens between 38 and 48 years of age ($M = 2.96$, $SD = 1.23$) and citizens aged over 68 ($M = 2.25$, $SD = 0.991$). Citizens between 38 and 48 years of age showed the highest level of awareness on potential flood risk, while the lowest was recorded among the citizens between 48 and 58 years of age;
- Evaluation of highlighting the reasons "my help would not mean anything" for not engaging in assisting jeopardized citizens from floods is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.49$, $SD = 1.19$) and citizens aged over 68 ($M = 4.11$, $SD = 1.05$). Citizens between 18 and 28 years of age showed the highest level of the indicated reason, while the lowest was recorded among the citizens aged over 68;
- Evaluation of highlighting the reasons "others have already helped enough" for not engaging in assisting jeopardized citizens from floods is statistically significant ($p < 0.05$) and each differs among citizens between 58 and 68 years of age ($M = 3.08$, $SD = 1.41$) and citizens between 48 and 58 years of age ($M = 2.62$, $SD = 1.25$). Citizens between 58 and 68 years of age showed the highest level of the indicated reason, while the lowest was recorded among the citizens between 48 and 58 years;
- Evaluation of highlighting the reasons "it is the job of state authorities" for not engaging in assisting jeopardized citizens from floods is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 2.49$, $SD = 1.19$) and citizens aged over 68 ($M = 4.11$, $SD = 1.05$). Citizens between 18 and 28 years of age showed the highest level of the indicated reason, while the lowest was recorded among the citizens aged over 68;
- Evaluation of highlighting the reasons "I expected that primarily citizens from affected areas will be engaged" for not engaging in assisting jeopardized citizens from floods is statistically significant ($p < 0.05$) and each differs among citizens aged over 68 years of age ($M = 4.44$, $SD = 0.882$) and citizens between 18 and 28 years of age ($M = 2.68$, $SD = 1.25$). Citizens aged over 68 showed the highest level of the indicated reason, while the lowest was recorded among the citizens between 18 and 28 years;
- Evaluation of efficiency of response of fire and rescue units during floods is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 3.36$, $SD = 1.31$) and citizens between 28 and 38 years of age ($M = 3.61$, $SD = 1.24$). Citizens between 18 and 28 years of age showed the lowest level of the efficiency, while the highest was recorded among the citizens between 28 and 38 years of age;
- Evaluation of efficiency of response of emergency medical service during floods is statistically significant ($p < 0.05$) and each differs among citizens between 18 and 28 years of age ($M = 3.30$, $SD = 0.047$) and citizens between 28 and 38 years of age ($M = 3.68$, $SD = 0.050$). Citizens between 28 and 38 years of age showed the lowest level of the efficiency response, while the highest was recorded among the citizens between 18 and 28 years of age.

Table 2: One-way ANOVA results of different groups of age and continuous dependent variables on the perception of readiness to response

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Readiness of household members	Between Groups	17.066	6	2.844	2.964	.007*
	Within Groups	2372.480	2472	.960		
	Total	2389.546	2478			
Self ability	Between Groups	38.944	6	6.491	6.103	.000*
	Within Groups	2604.736	2449	1.064		
	Total	2643.681	2455			
First responders	Between Groups	24.183	6	4.030	2.288	.033*
	Within Groups	4271.815	2425	1.762		
	Total	4295.998	2431			
Religious communities	Between Groups	20.569	6	3.428	2.277	.034*
	Within Groups	3631.709	2412	1.506		
	Total	3652.278	2418			
Selforganized individuals	Between Groups	69.109	6	11.518	6.483	.000*
	Within Groups	4317.244	2430	1.777		

	Total	4386.354	2436			
Citizens from the affected areas	Between Groups	10.048	6	1.675	.997	.426
	Within Groups	3867.405	2302	1.680		
	Total	3877.453	2308			
Police efficiency	Between Groups	35.656	6	5.943	3.583	.002*
	Within Groups	3994.093	2408	1.659		
	Total	4029.749	2414			

**** There is statistically significant difference between the mean values of the dependent variables in 6 groups – Sig. ≤ 0.05***

Robust Testss of Equality of Means					
		Statistic[a]	df1	df2	Sig.
Readiness of individuals	Welch	.485	6	102.113	.818
	Brown - Forsythe	.451	6	208.257	.844
Readiness of local community	Welch	2.101	6	102.639	.059
	Brown - Forsythe	2.212	6	245.961	.043
Readiness of the State	Welch	3.292	6	102.443	.005
	Brown - Forsythe	3.185	6	271.188	.005
Importance of protective measures	Welch	7.396	6	102.675	.000*
	Brown - Forsythe	6.037	6	145.860	.000*
First responders	Welch	2.340	6	102.287	.037*
	Brown - Forsythe	2.373	6	257.846	.030*
I am not jeopardized	Welch	6.078	6	102.865	.000*
	Brown - Forsythe	6.668	6	433.514	.000*
I have no time for that	Welch	2.475	6	103.179	.028*
	Brown - Forsythe	2.422	6	462.136	.026*
It's very expensive	Welch	5.375	6	103.475	.000*
	Brown - Forsythe	5.440	6	546.973	.000*
It will not affect security	Welch	4.519	6	103.092	.000*
	Brown - Forsythe	5.047	6	453.721	.000*
I am not capable to do that	Welch	2.754	6	103.077	.016*
	Brown - Forsythe	2.210	6	548.937	.041*
I have no support	Welch	9.441	6	104.505	.000*
	Brown - Forsythe	6.698	6	803.006	.000*
I cannot prevent it	Welch	3.504	6	102.387	.003*
	Brown - Forsythe	2.958	6	236.582	.008*
Household members	Welch	4.869	6	99.649	.000*
	Brown - Forsythe	5.357	6	127.435	.000*
Neighbours	Welch	2.997	6	103.756	.010*
	Brown - Forsythe	3.357	6	711.311	.003*
Non-governmental humanitarian organizations	Welch	7.763	6	102.432	.000*
	Brown - Forsythe	8.505	6	334.937	.000*
International humanitarian organizations	Welch	2.652	6	102.158	.020*
	Brown - Forsythe	2.704	6	247.453	.015*
Police	Welch	4.510	6	104.409	.000*
	Brown - Forsythe	4.460	6	521.352	.000*
Fire and rescue units	Welch	4.511	6	102.150	.000*
	Brown - Forsythe	5.099	6	274.922	.000*
Emergency medical service	Welch	5.661	6	103.274	.000*
	Brown - Forsythe	6.535	6	477.713	.000*
Army	Welch	3.366	6	102.766	.005*

	Brown - Forsythe	3.490	6	397.423	.002*
Awareness	Welch	5.817	6	102.751	.000*
	Brown - Forsythe	5.603	6	307.929	.000*
Help would not mean	Welch	5.354	6	102.440	.000*
	Brown - Forsythe	5.693	6	383.166	.000*
Others already helped	Welch	4.886	6	102.959	.000*
	Brown - Forsythe	4.174	6	551.864	.000*
Job state business	Welch	6.537	6	102.411	.000*
	Brown - Forsythe	5.189	6	500.422	.000*
Lack of time	Welch	1.951	6	102.074	.080
	Brown - Forsythe	1.877	6	184.896	.087
It is too expensive	Welch	.820	6	102.371	.557
	Brown - Forsythe	.851	6	301.345	.532
Efficiency of fire and rescue units	Welch	5.928	6	102.442	.000*
	Brown - Forsythe	6.145	6	278.641	.000*
Efficiency of emergency medical service	Welch	1.909	6	102.458	.086
	Brown - Forsythe	1.965	6	347.797	.070
Army efficiency	Welch	3.194	6	106.077	.081
	Brown - Forsythe	3.164	6	790.595	.075
Efficiency of Headquarters for Emergency Situations	Welch	3.194	6	106.077	.006*
	Brown - Forsythe	3.164	6	790.595	.005*
a. Asymptotically F distributed.					

*** There is statistically significant difference between the mean values of the dependent variables in 6 groups – Sig. ≤ 0.05**

Results of χ^2 have shown a statistically significant relationship between age and the following variables: knowledge of the flood ($p = 0.000 < 0.05$, $v = 0.134$ – minor impact); safety procedures knowledge ($p = 0.000 < 0.05$, $v = 0.155$ – minor impact); evacuation ($p = 0.000 < 0.05$, $v = 0.086$ – minor impact); school education ($p = 0.000 < 0.05$, $v = 0.145$ – minor impact); Education in the family ($p = 0.000 < 0.05$, $v = 0.091$ – minor impact); Education at work ($p = 0.000 < 0.05$, $v = 0.132$ – minor impact); elders, disabled persons ($p = 0.002 < 0.05$, $v = 0.076$ – minor impact); help – elders, disabled persons ($p = 0.000 < 0.05$, $v = 0.123$ – minor impact); neighbours – selforganized ($p = 0.000 < 0.05$, $v = 0.100$ – minor impact); Map of flood risk ($p = 0.000 < 0.05$, $v = 0.092$ – minor impact); official worning ($p = 0.000 < 0.05$, $v = 0.151$ – minor impact); potential infections ($p = 0.000 < 0.05$, $v = 0.146$ – minor impact); water valve ($p = 0.000 < 0.05$, $v = 0.193$ – minor impact); gas valve ($p = 0.000 < 0.05$, $v = 0.157$ – minor impact); electricity switch ($p = 0.000 < 0.05$, $v = 0.134$ – minor impact); water valve handling ($p = 0.000 < 0.05$, $v = 0.204$ – minor impact); gas valve hanlding ($p = 0.000 < 0.05$, $v = 0.172$ – minor impact); electricity switch handling ($p = 0.000 < 0.05$, $v = 0.160$ – minor impact); information obtained from the household members ($p = 0.000 < 0.05$, $v = 0.186$ – minor impact); information obtained from the neighbours ($p = 0.000 < 0.05$, $v = 0.144$ – minor impact); information obtained from the friends ($p = 0.000 < 0.05$, $v = 0.149$ – minor impact); information obtained from the family ($p = 0.000 < 0.05$, $v = 0.104$ – minor impact); information obtained in school ($p = 0.000 < 0.05$, $v = 0.135$ – minor impact); information obtained at faculty ($p = 0.000 < 0.05$, $v = 0.129$ – minor impact); information obtained through informal system ($p = 0.000 < 0.05$, $v = 0.125$ – minor impact); information obtained at work ($p = 0.000 < 0.05$, $v = 0.146$ – minor impact); information obtained within the religious community ($p = 0.02 < 0.05$, $v = 0.090$ – minor impact); information obtained from media (television) ($p = 0.000 < 0.05$, $v = 0.132$ – minor impact); information obtained from radio ($p = 0.002 < 0.05$, $v = 0.091$ – minor impact); information obtained from the press ($p = 0.040 < 0.05$, $v = 0.070$ – minor impact); information obtained from the web ($p = 0.000 < 0.05$, $v = 0.238$ – middle impact); trained ($p = 0.009 < 0.05$, $v = 0.080$ – minor impact); desire for training ($p = 0.000 < 0.05$, $v = 0.116$ – minor impact); media (television) education ($p = 0.000 < 0.05$, $v = 0.129$ – minor impact); radio education ($p = 0.000 < 0.05$, $v = 0.098$ – minor impact); video games education ($p = 0.000 < 0.05$, $v = 0.111$ – minor impact); internet education ($p = 0.000 < 0.05$, $v = 0.226$ – minor impact); courses ($p = 0.029 < 0.05$, $v = 0.073$ – minor impact); informal system ($p = 0.005 < 0.05$, $v = 0.084$ – minor impact). On the other hand, there was no statistically significant association with variable consent to evacuation ($p = 0.80 > 0.05$) (table 3).

According to the results, the highest percentage of:

- Citizens between 38 and 48 years of age (45.9%) know where in the community elders, disabled persons and infants live;

- Citizens between 48 and 58 years of age (88.4%) claim that they know what the flood is, would evacuate: to the upper floor of the house (48.2%), to the neighbors (14.9%), in case when the flood is expected (92.1%), are familiar with viruses and infections that accompany the post-flood period (54.5%), know how to handle water valve (88.9%), state that they received information about the floods through the informal system of education (19.3%), underwent some of the training for dealing with natural disasters caused by floods (8.1%);
- Citizens between 58 and 68 years of age (37.3%) point out that have knowledge of safety procedures when handling the flood; are familiar with the map of flood risk of local community (26.4%); know what to do after an official warning about the approach of the flood wave (44.7%); know how to handle gas valve (67%), electricity switch (82.5 %); point out that the information about the floods were received from neighbors (31.6%), from religious community (5.3%); we would like to be educated through television (71.5%), the press (43.2%);
- Citizens aged over 68 (39.5%) would evacuate to a friend's, to reception centers (27.9%); know what assistance is required by elders, disabled persons and infants (76.5%); state that their neighbors can self-rescue in the event of floods (45.1%); know where the water valve is (96.2%), gas valve is (81.5%), the electricity switch is (90.4%); say that the information about floods were got from family (28.3%), at the faculty (0.4%); would like to be educated thorugh the radio (34.6%), television (84.8%);
- Citizens between 18 and 28 years of age (34.6%) point out that somebody in a primary/secondary school tought them about the floods; they point out that someone in the family tought them about the floods (50.2%); state that information about the floods were received from the household members (67%), from friends (17.3%), from the family (20%), though informal system of education (12.7%); underwent some of the training for dealing with natural disasters caused by floods (44.5%); would like to be educated on flooding though the internet (37.6%), though television (41.1%);

On the other hand, the smallest percentage of:

- Citizens aged over 68 (52.2%) claim that they know what is a flood, say they know the safety procedures when handling the flood (4.9%); would evacuate to the upper floor of the house (30.2%); citizens over the age of 68 (13.5%) point out that somebody in a primary/secondary school tought them about the floods; point out that someone in the family tought them about the floods (25%); would evacuate in case when advance flood is expected (88.5%); are familiar with the map of flood risk of the local community (7.8%); are familiar with viruses and infections that accompany post-flood period (25.5%); would like to be educated through the Internet (0%); point out that the information about the floods were get from friends (1.5%, from the family (0.5%), though informal system of education (1.4%); underwent one of the training for dealing with natural disasters caused by floods (8.7%); point out that the information about the floods were get through religious community (5.3%);
- Citizens between 58 and 68 years of age (24.1%) would evacuate to a friend's; point out that the information about the floods were get from neighbors (8.8%); would like to be educated on flooding over the Internet (5%);
- Citizens between 48 and 58 years of age (36.4%) state that their neighbors can self-rescued in the event of floods; state that the information about the floods were get from the household members (20.7%), family (9.8%), through non-formal education (0%);
- Citizens between 28 and 38 years of age (8.7%) would evacuate to the neighbors, in reception centers (8.7%); would like to be educated about the floods through the radio (10.8%);
- Citizens between 18 and 28 years of age (22.6%) state that someone at work tought them about the floods; know where in the community elderla, disabled persons and infants live (37.7%); know what assistance is required by elders, disabled pesons and infants (43.4%); know what to do after an official warning about the approach of flood (21%); know where the water valve is (64.6%), gas valve is (41.9%), electricity switch is (68.4%); know how to handle the water valve (56.1%), gas valve (36.1%), electricity switch (57.6%); state that the information about the floods were received at the faculty (9.6%); would like to be educated thourgh television (57.4%), through radio (13.9%), through press (29.9%); have undergone some of the training for dealing with natural disasters caused by floods (5.3%); want to be educated about the floods through television (57.5%).

Table 3: The results of χ^2 age and knowledge as an element of readiness to respond

	value	df	Asymp. Sig. (2 - sided)	Cramer's v
Knowledge about the floods	85.885	10	.000*	.134
Knowledge of safety procedures	110.180	10	.000*	.155
Evacuation	65.900	20	.000*	.086
Education in school	98.595	10	.000*	.145
Education in the family	38.785	10	.000*	.091
Education at work	79.534	10	.000*	.132
Elders and disabled persons	27.196	10	.002*	.076
Consent to evacuate	2.291	5	.808	.031
Help - elderls, disabled persons	73.276	10	.000*	.123
Neighbors – selforganized	47.373	10	.000*	.100
Map of flood risk	40.590	10	.000*	.092
Official worning	105.741	10	.000*	.151
Potentioal infections	100.012	10	.000*	.146
Water velve	179.347	10	.000*	.193
Gas velve	94.544	10	.000*	.157
Electricity switch	82.738	10	.000*	.134
Water velve handling	201.328	10	.000*	.204

Gas velve handling	115.904	10	.000*	.172
Electricity switch handling	118.862	10	.000*	.160
Information from household members	81.332	5	.000*	.186
Information from neighbours	48.401	5	.000*	.144
Information from friends	52.171	5	.000*	.149
Information from family	25.193	5	.000*	.104
Information obtained in school	42.782	5	.000*	.135
Information obtained at faculty	38.589	5	.000*	.129
Information obtained through informal system	35.755	5	.000*	.125
Information obtained at work	49.966	5	.000*	.146
Information obtained from religious community	18.779	5	.002*	.090
Information obtained through television	41.673	5	.000*	.132
Information obtained through radio	19.317	5	.002*	.091
Information obtained through press	11.650	5	.040	.070
Information obtained through Internet	133.361	5	.000*	.238
Trained	15.407	5	.009*	.080
Have desire to be trained	62.478	10	.000*	.116
Education via television	38.927	5	.000*	.129
Education over radio	22.308	5	.000*	.098
Education via video games	28.415	5	.000*	.111
Education over Internet	118.186	5	.000*	.226
Education through lectures	12.500	5	.029	.073
Informal system	16.674	5	.005	.084

*** There is a statistically significant correlation – $p \leq 0.05$**

One-way ANOVA studied the effect of age of citizens on continuous dependent variables of knowledge. The subjects were divided by age into 6 groups (18 to 28 years of age, 28 to 38 years of age, 38 to 48 years of age, 48 to 58 years of age, 58 to 68 years of age, and those over 68 years old). The homogeneity of variance test was used to test the equality of variances in the results for each of the 6 groups. Bearing in mind the results of Levene Statistic, the assumption of homogeneity of variance is violated in all variables.

According to the results, there was a statistically significant difference between the mean values of those groups with the following continuous dependent variables: the possibility of flooding ($F = 4.11$, $p = 0.001$, eta-squere = 0.0073 – minor impact); worning system ($F = 8.86$, $p = 0.000$, eta-squere = 0.0106 – minor impact); police ($F = 5.59$, $p = 0.000$, eta-squere = 0.0098 – minor impact); fire department ($F = 6.21$, $p = 0.000$, eta-squere = 0.0119 – minor impact); Headquarters for Emergency Situations ($F = 12.71$, $p = 0.000$, eta-squere = 0,0110 – minor impact); evacuation pathways ($F = 7.58$, $p = 0.000$, eta-squere = 0.0124 – minor impact); nearby shelters ($F = 4.58$ $p = 0.000$, eta-squere = 0.0109 – minor impact) (table 4).

Subsequent comparisons using Tukey HSD show that:

- Assessment of the possibilities of flooding the local community in the coming year is statistically significant ($p < 0.05$), and each differs among citizens between 18 and 28 years of age (M = 2.42, SD = 1.20) and citizens between 28 and 38 years of age (M = 2.68, SD = 1.37). Citizens between 18 and 28 years of age show the highest level of evaluation of flooding possibilities of the local community in the coming year, while the lowest level was recorded among the citizens between 28 and 38 years of age;
- Knowledge about the local community warning systems is statistically significant ($p < 0.05$), and each differs among citizens over the age of 68 (M = 1.50, SD = 0.792) and citizens between 28 and 38 years of age (M = 2.25, SD = 1.21). Citizens between 28 and 38 years of age show the highest level of knowledge of the warning system in the local community, while the lowest level was recorded among the citizens who are over the age of 68;
- Knowledge of the jurisdiction of the police during the floods is statistically significant ($p < 0.05$), and each differs among citizens over the age of 68 (M = 1.86, SD = 1.069) and citizens between 18 and 28 years of age (M = 2.65, SD = 1.17). Citizens between 18 to 28 years of age show the highest level of knowledge of the jurisdiction of the police during flooding, while the lowest level was recorded among the citizens who are over the age of 68;
- Knowledge of the jurisdiction of fire-rescue units during the floods is statistically significant ($p < 0.05$), and each differs among citizens over the age of 68 (M = 1.89, SD = 1.083) and citizens between 18 and 28 years of age (M = 2 65, SD = 1.17). Citizens between 18 and 28 years of age show the highest level of knowledge of competencies of fire-rescue units, while the lowest level was recorded among the citizens who are over the age of 68;
- Knowledge of competencies of headquarters for emergency situations during the floods is statistically significant ($p < 0.05$), and each differs among citizens over the age of 68 (M = 1.77, SD = 0.859) and citizens between 18 and 28 years of age (M = 2 65, SD = 1.18). Citizens between 18 and 28 years of age show the highest level of knowledge of competencies of headquarters for emergency situations, while the lowest level was recorded among the citizens who are over the age of 68;
- Knowledge of the pathways for evacuation during floods is statistically significant ($p < 0.05$), and each differs among citizens over the age of 68 (M = 1.91, SD = 1.053) and citizens between 18 and 28 years of age (M = 2.50, SD = 1.24). Citizens between 18 and 28 years of age show the highest level of knowledge of pathways for evacuation, while the lowest level was recorded among the citizens who are over the age of 68;
- Knowledge of the nearby shelters in case of floods is statistically significant ($p < 0.05$), and each differs among citizens between 48 and 58 years of age (M = 2.13, SD = 1.258) and citizens between 18 and 28 years

of age (M = 2.46, SD = 1.171). Citizens between 18 and 28 years of age show the highest level of knowledge of the nearby shelters, while the lowest level was recorded among the citizens who are over the age of 68.

Table 4: Results of one-way ANOVA of different groups of age and continuous dependent variables of knowledge to response

Robust Testss of Equality of Means					
		Statistic[a]	df1	df2	Sig.
The possibility of flooding – 1 year.	Welch	4.113	6	105.178	.001*
	Brown - Forsythe	3.377	6	704.217	.003*
Worning systems	Welch	8.866	6	103.711	.000*
	Brown - Forsythe	5.245	6	742.199	.000*
Police	Welch	5.597	6	103.528	.000*
	Brown - Forsythe	4.620	6	749.412	.000*
Fire department	Welch	6.218	6	102.929	.000*
	Brown - Forsythe	5.471	6	583.036	.000*
Headquarters for Emergency Situations	Welch	12.716	6	107.024	.000*
	Brown - Forsythe	5.797	6	1317.344	.000*
Evacuation pathways	Welch	7.587	6	103.701	.000*
	Brown - Forsythe	5.955	6	781.412	.000*
Nearby shelters	Welch	4.589	6	104.073	.000*
	Brown - Forsythe	5.101	6	775.151	.000*
a. Asymptotically F distributed.					

*** There is a statistically significant difference between the mean values of the dependent variables in 6 groups – Sig. ≤ 0.05**

Results of χ^2 showed a statistically significant relationship between age and the following variables: stocks at home ($p = 0.000 < 0.05$, $v = 0.127$ – minor impact); food stocks ($p = 0.000 < 0.05$, $v = 0.198$ – minor impact); water stocks ($p = 0.000 < 0.05$, $v = 0.198$ – minor impact); flashlight ($p = 0.002 < 0.05$, $v = 0.120$ – minor impact); shovel ($p = 0.000 < 0.05$, $v = 0.148$ - minor impact); hack ($p = 0.002 < 0.05$, $v = 0.121$ – minor impact); pick and spade ($p = 0.000 < 0.05$, $v = 0.175$ – minor impact); primary fire extinguisher ($p = 0.022 < 0.05$, $v = 0.105$ – minor impact); restocking ($p = 0.000 < 0.05$, $v = 0.177$ – minor impact); stocks in the car ($p = 0.000 < 0.05$, $v = 0.101$ – minor impact); first aid kit in the home ($p = 0.000 < 0.05$, $v = 0.159$ – minor impact); first aid kit in the car ($p = 0.000 < 0.05$, $v = 0.141$ – minor impact); response plan ($p = 0.000 < 0.05$, $v = 0.094$ – minor impact); plan discussion ($p = 0.002 < 0.05$, $v = 0.079$ – minor impact); document copies ($p = 0.000 < 0.05$, $v = 0.131$ – minor impact); insurance ($p = 0.000 < 0.05$, $v = 0.200$ – minor impact). On the other hand, there was no statistically significant relationship with variables: radio-transistor ($p = 0.29 > 0.05$); first aid kit in the home – easily accessible ($p = 0.43 > 0.05$) (table 5).

According to the results, to the highest percentage:

- Citizens over the age of 68 (38%) have stocks in the case of natural disasters caused by flooding; have a flashlight (45.8%); have their households insured from the consequences of floods (14.6%);
- Citizens between 58 and 68 years of age (37.1%) have stocks of food for one day; have an unwritten plan for responding to floods (14.1%); have a shovel (63%); have a hack (43%); have extinguisher for extinguishing primary fire (23.6%); have a first aid kit at home (61.6%); have a plan for responding to floods (4%); have stocks in the car in case of floods (11.5%);
- Citizens between 48 and 58 years of age (34.9%) have a water stock for a day; never restocking (57.5%);
- Citizens between 38 and 48 years of age (21.3%) have food stocks for two days;
- Citizens between 28 and 38 years of age (21.3%) have food stocks for four days, and the water stock for four days (57.1%);
- Citizens between 18 and 28 years of age (42.8%) have a water stock for two days; have a radio (21.3%); restocking once a month (41.7%); restocking annually (28.5%);

On the other hand, to the smallest percentage:

- Citizens between 18 and 28 years of age (16.5%) have a water stock for one day; hack (23%); never restocking (29.8%); have food stocks for one day (14%);
- Citizens between 38 and 48 years of age (18.6%) have stocks in case of natural disasters caused by flooding; have food stocks for four days (55.9%); restocking annually (11%);
- Citizens between 48 and 58 years of age (14.3%) have a water stock for two days; a flashlight (31.5%); a shovel (34%); extinguisher for extinguishing primary fire (10%); restocking once a month (24.4%); have a first aid kit at home (43.5%);
- Citizens between 58 and 68 years of age (4.3%) have food stocks for two days; unwritten plan for responding to floods (14.1%);
- Citizens aged over 68 (42.1%) have a water stock for four days; the radio (10%); have stocks in the car in case of floods (0%); have a plan for responding to floods (0%); have insured their households from the consequences of floods (5.4%).

Table 5: Results of χ^2 of years of age and stocks and response plans

Variables	value	df	Asymp. Sig. (2 - sided)	Cramers v
Stocks at the home	**77.546**	**10**	**.000***	**.127**
Food stocks	**58.824**	**10**	**.000***	**.198**
Water stocks	**55.426**	**10**	**.000***	**.198**
Radio	10.126	5	.072	.090
Flashlight	**18.479**	**5**	**.002***	**.120**
Shovel	**28.018**	**5**	**.000***	**.148**
Hack	**18.557**	**5**	**.002***	**.121**
Pick and spade	**39.261**	**5**	**.000***	**.175**
Extinguisher for extinguishing primary fire	**13.137**	**5**	**.022***	**.105**
Restocking	**80.423**	**10**	**.000***	**.177**
Stocks in the car	**69.876**	**15**	**.000***	**.101**
First aid kit in the house	**114.644**	**10**	**.000***	**.159**
First aid kit in the car	**74.122**	**10**	**.000***	**.141**
First aid kit – easily available	10.110	10	.431	.050
Response plan	**62.900**	**15**	**.000***	**.094**
Plan discussion	**27.716**	**10**	**.002***	**.079**
Document copies	**76.306**	**10**	**.000***	**.131**
Insuranse	**188.765**	**10**	**.000***	**.200**

*** Statistically significant correlation – $p \leq 0.05$**

Conclusion

The research results indicate to the most percentage:

- Citizens between 18 and 28 years of age would engage in providing assistance to victims in the field, and in some of the reception centers for the reception of victims of floods; state that someone tought them in a primary/secondary school about the floods; point out that someone in the family thought them about the floods; point out that the information about the floods were got from household members, friends, family, through informal education system; have undergone one of the training for dealing with natural disasters caused by floods; would like to be educated about the floods through the Internet, via television; the highest level of readiness of household to response was recorded; the highest level of a reason "it is very expensive", then "I have no support from the local community", "I cannot prevent the consequences in any way". For not taking preventive measures at the personal level, there was the higher level of expectation of the household assistance, international humanitarian organizations; the highest level of a reason "my help would not mean much", "it is the job of state authority" was recorded for non-engagement in assisting jeopadized citizens; the highest level of possibility of flooding of the local community in the coming year was recorded; the highest level of knowledge of the jurisdiction of the police, fire and rescue units, headquarters, evacuation pathways, nearby shelters during floods, water stocks for two days was recorded; have a radio, restocking once a month, and restocking annually;
- Citizens between 28 and 38 years of age, know the warning systems in the local community; have food stocks for four days, water stocks for four days;
- Citizens between 38 and 48 years of age, know where in the community elderls, disabled persons and infants live; have food stocks for two days; have stocks in case of natural disasters caused by flooding; have food stocks for four days, restocking annually;
- Citizens between 48 and 58 years of age state that are not yet ready, but intend to do so in the next 6 months; state that are still not ready, but will start preparing from next month;
- Citizens between 58 and 68 years of age would have taken preventive measures; point out that their thinking about preparedness for responding to floods is encouraged by visiting of the flooded areas, raising of the water level; points out that posses the knowledge of safety procedures to handle the flood; are familiar with the map of flood risk of local community and know what to do after an official warning about the approach of the flood; know how to operate a gas valve, electricity switch; point out that the information about the floods were got from the neighbors, from religious community; would like to be educated through television, the press, have food stocks for one day, have an unwritten plan for responding to floods, have a shovel, have hack, have extinguisher for extinguishing primary fire, have a first aid kit in the house, have a plan for responding the floods, have stocks in the car in case of floods, have food stocks for two days; unwritten plan for responding to floods;
- Citizens over the age of 68 state that they are encouraged to think about preparedness for response by media reports; point out that are doing nothing to prepare for response to floods; claim that they know what is a flood; would evacuate to the upper house floors, to the neighbors; would evacuate in case of expected advance flood; are familiar with viruses and infections that follow the period after the flood; know how to handle the water valve; point out that the information about the floods were got through informal education system; have undergone some of the training for the response during natural disasters caused by flooding; have water stocks for one day; never restocked; have water stocks for two days, flashlight, shovel, extinguisher for extinguishing primary fire, restocking once a month have a first aid kit in the house; would evacuate to friends, to reseption centers, know what assistance is required by elders, disabled persons and

infants, point out that their neighbors can self-rescue in the event of a flood, they know where the water valve , gas valve, electricity switch is, point out that information on the floods were got from the family.

- The Faculty, would like to be educated via radio, television, the lowest level of knowledge of the warning system in the local community was recorded, have stocks in case of natural disasters caused by flooding, have a flashlight, have ensured household from the consewuence of floods, have water stocks for four days, radio, have stocks in the car in case of floods, have a plan for responding to floods, have ensured their households from the effects of flooding.

Recommendations

To affect on:

- Citizens between 18 and 28 years of age by educating that failure to undertake preventive measures is not justified by emphasizing that this is very expensive. Local governments should support them in taking preventive measures. Educate them that they can prevent or reduce the effects of floods by taking preventive measures. Point out that their assistance would be of great benefit in helping disadvantaged citizens on the field that it is not just the job of state authorities. Educate them over the Internet and television. Have influence on them to ensure water stocks for a day, to restocks and to have food stocks for one day;
- citizens between 28 and 38 years of age to take preventive measures with the aim to reduce the impact of floods; encourage them to think about preparedness measures with the help of the media; teach them that they are by taking the preventative measures capable of it; educate them about the importance of evacuation to reception centers; inform them about the potential flood risk in the coming year;
- Citizens between 38 and 48 years of age to raise the level of preparedness of households to response. Affect the ensuring of stocks in the case of the disaster, food stock for four days; and to restocks on a monthly basis;
- citizens between 48 and 58 years of age to become involved in helping victims on the field; Encourage them to think about preparedness measures by organizing a visits to the flooded areas, by showing pictures or recordings of flooded areas; educate them about the potential flood risk in their local community. Influence them to provide water stocks for two days, a flashlight, shovel, extinguisher for extinguishing primary fire, to restock once a month, to have a first aid kit in the house;
- Citizens between 58 and 68 years of age, by informing that it is impossible to rely on the fact that others have enough help as the reason for the failure to engage in the provision of assistance to disadvantaged citizens; educate them through television and the press. Influence them to have food stocks for two days and unwritten plan for response.

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