

# STUDY OF THE READINESS OF THE POPULATION OF VARNA REGION FOR PROTECTION IN CASE OF DISASTROUS SITUATIONS

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## ABSTRACT

The great percentage of complications when assessing results from questionnaires administered to people in circumstances of disastrous situations such as earthquake, flood and breakdown is mainly due to the lack of knowledge and skills in self-helping and helping each other. To ascertain the readiness for protection in case of disasters, during the period between May 15 and December 30, 2003, an inquiry among the population of the region Varna was carried out. The questionnaire was filled-up by 1000 individuals aged over 18 years. There was no essential difference in the answers of the people from Varna and the rest residential zones in the area. The majority of respondents had no self-confidence in responsibility and protection in case of disasters. The reason was the lack of knowledge. About 85% of them considered that their knowledge should be improved. A high percentage (80,6%) of the individuals would like to have own means for protection at home like cotton-gauze masks and chemicals for disinfection in case of epidemics or usage of a biological weapon.

**Key words:** disastrous situation, self-defence, population, inquiry, region of Varna

Defence of population from disasters is a priority of all civilized countries (2). To fight against them, especially against those with mass character, a good coordination of health care and preparation of the population for adequate behaviour in the disastrous region and whole country is needed (1,3). A great percentage of people injured in mass catastrophes is owed to the lack of knowledge and skills in a certain extreme moment, and that is the main reason for panic and disorder leading to increasing number of dead and people who need help (4).

## MATERIAL AND METHODS

To ascertain the readiness for protection in case of disasters, during the period between May 15 and December 30, 2003, an inquiry among the population of the region of Varna was carried out. The amount of gathered information is individual. The questioned individuals are over 18 years old. Units of the study were defined through randomized step through lottery - a 0,2% extract of the population according to the place they live from all the regions on the territory of the towns of Varna, Provadia and Devnya and 3 small regions such as villages of Aksakovo, Kichevo and Avren. The so-

ciological study was realized by the method of individual inquiry using a standard interview with 33 items.

We have used mainly hard advance coding. Questions are well-structured and clear for the research worker. The classifier is formed through the process of making the questionnaire and it is fixed in it. The indicators of the observation are biological (gender, age), social (education, qualification, work status), place of living (in Varna, out of Varna - in the surrounding region) and specific (knowledge of correct behaviour in case of pollution with substances, with poisons such as chlorine and ammonia and rise of epidemic).

After the statistic processing of the results and their presentation the criterion of  $\chi^2$  for alternative, correlation and graphic analysis was made use of.

## RESULTS AND DISCUSSION

The distribution by age of the individuals questioned from the region of Varna was in 4 groups: I - 18-25 years; II - 26-40 years; III - 41-60 years, and IV - >60 years (Table 1). The second and third group amounted nearly to 35% from all questioned, the first (youngest) group - to 24,3%, and the fourth (oldest) - to 9,2%; 45,6% were men and 54,4 were women. The distribution by education for the region was dominated by the secondary education - 60,5% followed by university education - 21,6%, college education - 11,7%, and primary education - 5,8%; 29,8% of the subjects had a speciality.

To the question 'What kind of disasters do you know?' 80% of the persons pointed the nature disasters, 69,8% pointed

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more than two; 55% pointed anthropogenical, and 47,4% gave more than one answer. Essential differences between answers from the town of Varna and those of the region were missing.

home in case of doubt there is a toxic pollution of the foods is small. Barely 51,5% of all questioned know that foods should be well washed with water and 29,6% of them that they should be peeled.

Table 1. Distribution of the inquired individuals according to gender, age and residential area

Distribution by age (years)	Questioned from Varna				Questioned out of Varna				Total			
	Men		Women		Men		Women		Men		Women	
	n	%	n	%	n	%	n	%	n	%	n	%
18-25	94	11,75	99	12,38	25	12,50	25	12,50	119	11,90	124	12,40
26-40	123	15,37	124	15,50	34	17,00	41	20,50	157	15,70	165	16,50
41-60	119	14,88	153	19,13	30	15,00	41	20,50	149	14,90	194	19,40
>60	31	3,87	57	7,12	0	0	4	2,00	31	3,10	61	6,10

After looking at the situational task placed into question No 5, 66,2% of the questioned persons defined landslides as most dangerous and most probable to happen in the region (Fig. 1).

Answers concerning hygiene requirements of drinking water quality reveal a better knowledge: 76,6% know that water must be microbiologically clean, 61,8% - harmless by its chemical structure, 44,7% - colourless and limpid, and

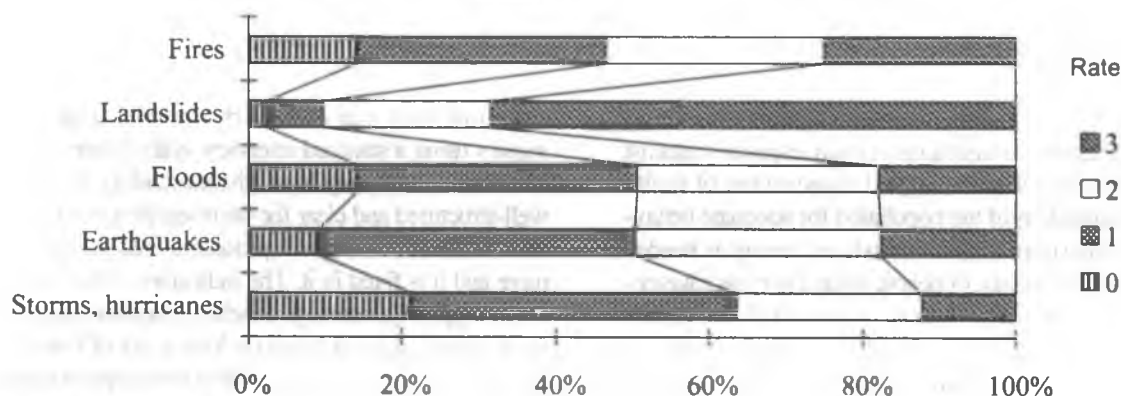


Fig. 1 Evaluating the rate of probability for danger in case of natural disasters

In evaluating the level of danger of probability for athropogenical breakdowns to happen, 1/3 of questioned individuals pointed as most probable chemical breakdowns and epidemics to happen.

After the statistical processing of the information and the results it became clear that, according to their residence and the breakdowns which have happened in this region, the questioned persons prioritized like the following: people from the town of Varna indicated landslides on first place, together with those who like in the region of Devnya pointed chemical catastrophes and epidemics and in the region of Provadia floods as most probable to happen ( $P(x^2) < 0,05$ ,  $r = 0,78$ ).

According to our opinion, the knowledge of the people interviewed is sufficient, especially concerning the possibilities of pollution with toxic substances after a breakdown in AEC. The number of the informed what should be done at

38,3% - with good taste. In case of dropping chlorine only 38% will correctly use a cotton-gauze mask with soda bicarbonate, and 36,4% will do the mistake to wet it with vinegar. Correct behaviour - going up to higher places will have only 37,6% of the respondents. Similar is knowledge about pollution with ammonia: 38,6% will correctly wet the mask with vinegar and 29,9% will wrongly use soda bicarbonate. Correct behaviour - going down to lower places will have only 29,2%; 62,8% will quickly leave the area and 62,8% will put gas mask on. Cause-consequence relation of this question ( $r$  is in the interval between 0,71 and 0,82) enables us to accept that the higher level of erudition leads to better informational state and preparation for action in extreme situations. There is no difference between the answers of questioned from the town of Varna and other regions ( $P(x^2) > 0,05$ ).

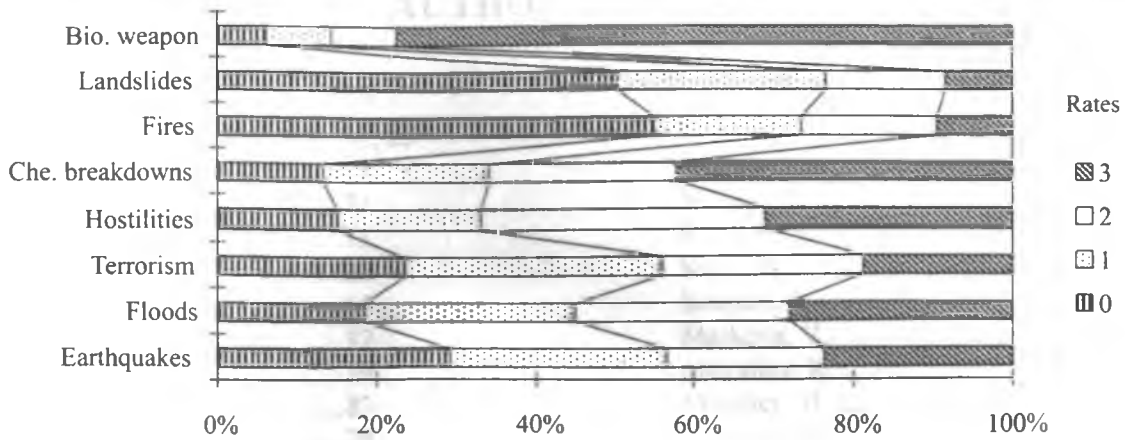


Fig. 2. Evaluating the rate of danger of rise of epidemics

The same could be said about the gender.

There are interesting answers to the situational task - 'Which disasters hide the biggest danger of arising epidemics?' (Fig. 2). According to 70,8% of the individuals, the larger danger will be the biological weapon, and according to 40%, next come the landslides (wrong answer) and 30% fire.

The questioned are well informed about that cholera (72,4%), anthrax (76,3%) and plague (67,4%) are especially dangerous infections which are under WHO's control; 39,2% wrongly assign to this group malaria and 13,5% - influenza. Some 51,7% of all questioned will (quite wrong) leave the range of epidemic, 52,6% will correctly look for the means of defence, and 38,2% - for information and instructions.

The questioned consider that the defence against air-drop infections is realized through: cotton-gauze mask - 60,2%; vaccine immunization - 50,5%; airing and disinfection - 36,2% and medical help - 30,3%. Preventive measures in case of disaster for averting the rise of epidemic are known for near the half: 58,4% are aware of sanitary cleaning of territory; 52,8% - of vaccine immunization, 51% will look for instructions, and 47,5% - for information.

Analysis of subjective evaluation about the degree of readiness for defence in disasters shows that 44,7% of the questioned individuals consider themselves unprepared; 44,8% are partly prepared and only 10,6% have self-confidence for a good defence. Most methods of protection are known by the questioned people: 79,6% are for teaching and preparation; 68,6% - insurance of means of protection; 57,5% - information of the population; 47,2% - evacuation and only 26,7% - concealing. The level of readiness for action in case of disaster and breakdown ( $P(x^2) < 0,01$ ) depends on the level of erudition, the age, and the presence of specialty.

Predominant number (80,6% of all respondents) know that they must have in their homes the means of defence like cotton-gauze mask, medical goods, means for cleaning and

disinfection in case of epidemics or use of biological weapon.

Population receive the knowledge for action in case of disasters mainly from mass media (radio, newspaper, television) (40,6%), from school (36,1%) and to a lesser extent from workplace, military service and other sources. The majority (85%) considers that knowledge of the population should be improved: 70,6% of all prefer that it happens through radio and television; 43,4% - through newsheets, brochures etc., and 32,1% - at school.

## CONCLUSION

The population of the region of Varna accepts that landslides, chemical breakdowns and epidemics are the largest danger for the region. There are no essential differences according to place, gender and age in the answers of questioned people. The level of education is important for better information status about the questions concerning the effects of toxic substances. The respondents have no self-confidence for their readiness for protection in case of disaster determined by limited knowledge and 85% of them consider that knowledge should be improved.

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