

DISASTER MEDICAL PREPAREDNESS AS AN ELEMENT OF POPULATION RESILIENCE

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Abstract: A lot of evidence has been published recently regarding recorded increase in disaster frequency and severity. Society resilience is function of the knowledge and skills how to react, endure and recover from a negative event. Enhancing the preparedness of ordinary citizen how to protect his or her life in case of natural or man-made calamity is a prerequisite for ameliorating the population resilience.

The aim of this study is to evaluate the population medical preparedness in case of disaster.

Materials and Methods In order to achieve the set goal 10-question dichotomous survey was performed between 406 citizens from Bulgaria and Italy. The survey was orientated mainly to the middle aged group - 89% of the participants are aged between 18 – 60 years. This age group was selected, because citizens within it are physically and psychologically fit to act in accordance to planned and trained procedures. The questions of the survey included two main field of the disaster medical preparedness – general knowledge about the disasters and the preplanned preventive activities, as well as to the personal skills and preparedness for surviving and supporting casualties nearby.

Results and Discussions Obtained results provide clear evidence that the great majority of the population self estimate their knowledge and skills as extremely insufficient. Only 12% of the participants have answered positively about awareness regarding the disaster management plan of the region where they live or installation, where they are working. Positive responses given to the other questions is higher in comparison to the disaster management plan awareness, but they are far from the desired levels - average of the positive answers is 26%. What is more, there is no one question where the participants reached 50% positive answers.

The results of the performed survey undoubtedly reveal the low level of the population medical preparedness for appropriate reaction and activities in case of calamities

Keywords: Disasters, Population Resilience, Disaster Medical Preparedness, Disaster Medicine.

INTRODUCTION

Last decades we have witnessed significant increase in both frequency and severity of calamitous events. A lot of evidence has been published recently regarding recorded increase in disaster frequency and severity [1 - 8] There is almost unanimous agreement between the scholars and researchers that these trends are steady ones and what we could expect in the future is an ongoing increase in disasters occurrence and material and human lives losses. Several are the reasons for the above mentioned conclusion - population growth, globalization, industrialization, global warming , urbanization e etc. Moreover, when analyzing the given explanation regarding the recorded increase in disasters frequency and severity , it is almost obvious that the analyzed origin are interconnected and what is more, they are processes that are in the core of contemporary societies development. Based on these observations it is rational to admit that through the coming years we have to take into account the adverse effects of the disasters and to prepare the societies for facing the calamities and manage their negative consequences.

In order to be better prepared to face and control one event it is mandatory to understand its origin, the related to them risk and the required preventive and recovery activities. Analyzing the disastrous events as prerequisite for their occurrence is the availability of present into the particular region specific for the disaster hazard or hazards. For instance it will be weird to expect a cunami disaster to occur into landlocked desert. On the contrary the flood event could be foreseen to devastate the town built on the banks of a large,broad, deep and abounding in water river. Identification of the present hazards is the first step of the disaster risk evaluation process, where the vulnerability and severity of the possible consequences is also taken into consideration.

Analyzing the severity of consequences, the disasters impact on human life and health is always in the centre of the disaster managers.

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A lot of studies have been performed in order to clarify and define the activities required for enhance the society readiness to confront and recover in case of calamitous event. [9, 10, 11]

Resilience by definition is the ability of one system to recover quickly from difficulties [12] or an ability to recover from or adjust easily to misfortune or change. [13] Notwithstanding the extremely clear and short definition of the resilience, the aspects of the community or society resilience have discussed into scientific worlds for decades. [14, 15, 16, 17, 18] All these scientific work has reflected in great variety of diverse concepts regarding the components of resilience. Based on these a lot of different indicator frameworks have been established. For purposes of the study a a set of 15 components of resilience was implemented:

1. Governance (Actors, Institutional Arrangements, and Organisations)
2. Education, Research, Awareness and Knowledge
3. Information and Communication
4. Culture and Diversity
5. Preparedness
6. Response
7. Protection
8. Exposure, Experience and Impact Severity
9. Resources
10. Health and Well Being/ Livelihood
11. Economic
12. Adaptive Capacity
13. Coping Capacity
14. Innovation and Capital
15. Infrastructure and Technical. [11]

Closer examination of the components clearly represents that no resilience could be achieved without preparedness, response and protection to the hazards the society is exposed on in order to assure the health and wellbeing of the ordinary citizen. In other words the adaptive and coping capacity of the society, on one hand is orientated to the ordinary citizen health and wellbeing, but on the other hand the society resilience is fully dependent on the single citizen preparedness to confront, react to, adapt to and recover from the negative impact of the disasters. No one could argue that the readiness and reactions of the citizens is related to their physical and psychological status, therefore, the society health readiness and preparedness are the paramount of the society resilience. These observations correspond with the conclusions highlighted in various studies regarding the healthcare preparedness for prompt and adequate reactions in case of disaster as a significant tool in the society resilience. [19, 20, 21, 22, 23] Moreover a particular interest among the researches are the specific needs of medically vulnerable people (with chronic diseases, incapacitated, with mental disorders and etc) in case of disasters. [24, 25, 26, 27]

As all the other fourteen components of the society disaster resilience are orientated to the health and wellbeing of the citizens it is rational to examine how the ordinary citizen is self assessing his/her medical preparedness to react in case of natural or manmade disaster.

The aim of this study is to evaluate the population medical preparedness in case of disaster.

Materials and Methods In order to achieve the set goal 10-question dichotomous survey was performed between 406 citizens from Bulgaria and Italy. The survey was orientated mainly to the middle aged group - 89% (n=361) of the participants are aged between 18 – 60 years. This age group was selected, because citizens within it are physically and psychologically fit to act in accordance to planned and trained procedures. The questions of the survey (table 1) included two main field of the disaster medical preparedness – general knowledge about the disasters and the preplanned preventive activities (questions 1, 2, 3, 6, 9) as well as to the personal skills and preparedness for surviving and supporting casualties nearby (questions 4, 5, 7, 8, 10).

Table 1

Basic Theoretical Knowledge
1. Are you familiar with the Hospital/Institutional/ District Disaster Response Plan?
2. Are you familiar with the possible/expected disasters that could occur in your living area?

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3. Could you distinguish the health hazards related to the potential disasters?
4. Do you know how to protect yours and your family/friends life and health in case of disaster?
5. Do you know how to preserve yours and your family/friends life in case of injuries related to disasters damaging factors?
6. Do you know where to find collective and personal protective equipment in your region in case of disaster?
7. Do you have sufficient knowledge to utilize Personal Protective Equipment?
8. Do you have medical kit ready for first medical aid provision in case of disaster?
9. Do you know what is expected from you in case of disaster?
10. Have you attended any Disaster Medical Training or Course?

The study used face to face surveys of randomly selected participants, and electronic questionnaires distributed to mailing lists. All the participants in the survey were briefly familiarized with the objectives of the study and about the voluntariness of their participation. After receiving their informed consent the questionnaires were filled with Yes and No answers. Results were analyzed by the means of the descriptive and comparative methods.

RESULTS AND DISCUSSIONS

Answers provided by the participants into the questionnaires are presented into table 2:

Table 2

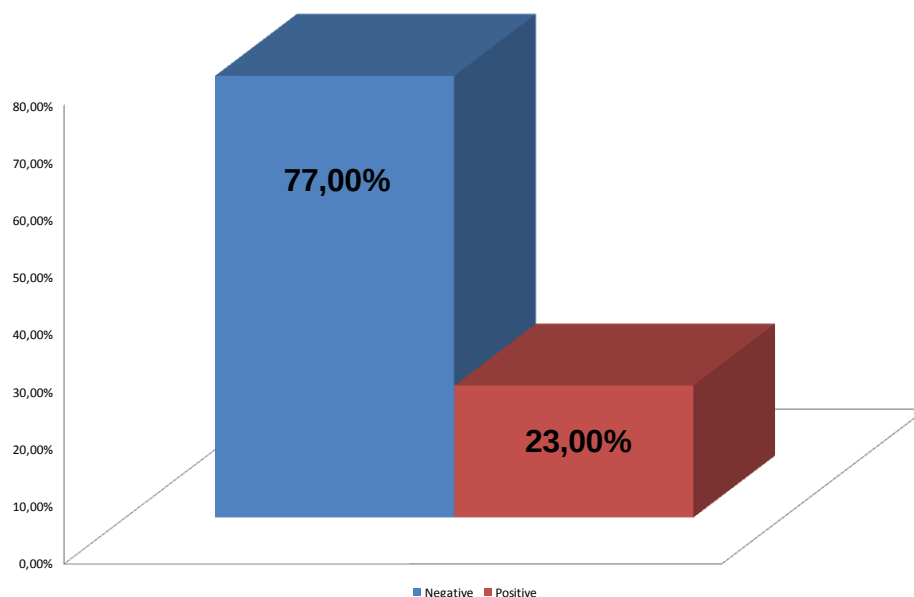
Question	YES	NO
1	49 (12%)	357(88%)
2	187(46%)	219(54%)
3	113(28%)	293(72%)
4	105(26%)	301(74%)
5	77(19%)	329(81%)
6	53(13%)	353(87%)
7	150(37%)	256(63%)
8	121(30%)	285(70%)
9	73(18%)	333(82%)
10	122(30%)	284(70%)

Surprisingly, obtained results are depicting one appalling piece of the general population perception regarding their resilience towards disasters. There is no one question, where the positive answers to exceed 50% that provides an undoubted evidence of the uncertainty of the general population in their capacity and capability to react adequately to one calamitous event. The only question, where almost 50% of the population are feeling confident in their knowledge is regarding the type of disaster that could devastate their living area. But even on such question related

mainly to the general knowledge that could be easily obtained by the broadcasting media and/or via Internet, 56% of the participants are expressing their ignorance. The reasonable conclusion about the level of general population resilience is low - it is quite difficult to adapt to and recover from something that is unknown. If someone is not aware about the possible extent of the threat, what kind of preparation and prevention could be planned and implemented?

Figure 1

GENERAL KNOWLEDGE



The results related to the general knowledge about the disasters are even more indicative about the low level of self-confidence population has on its theoretical preparedness for one disastrous event:

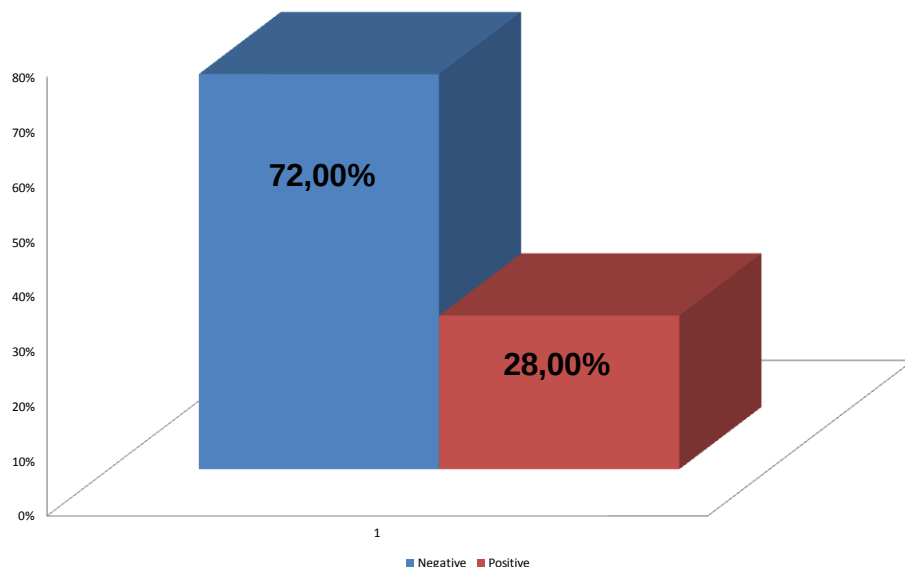
1. Only 12% (n=49) are aware about the preplanned activities for disaster relief;
2. 13% (n=53) know where to find Personal protective equipment and where to take shelter in case of calamity;
3. 28% (n=113) are those who are confident in linking the type of disaster with the possible negative effects on health;

Based on the above results, the 18% (n=73) of participants with positive answers regarding their role into disaster management is not unexpected. Figure 1 is presenting the summarized results about the expressed by the participants self evaluation of their general knowledge for calamities.

Analyzing the results regarding personal skills and preparedness for surviving and medically supporting casualties, the outcome is even more dramatic - the positive answers are between the lowest 19% (n=77) for those that are confident in their skills how to preserve the life in case of sustained injuries during disaster to 37% (n=150) positive answers to the questions about capabilities for proper utilization of personal protective equipment and collective protective facilities. The statistical significant difference ($p=0.000089$) between affirmative answers regarding utilization and awareness where to find personal protective equipment and collective protective facilities is another indicator about the lower level of disaster medical preparedness among general population. The average results of how population is assessing their personal skills and preparedness for surviving and medically supporting casualties nearby are presented in figure 2:

Figure 2

PERSONAL SKILLS



CONCLUSION

Performed survey revealed extremely low level of self confidence among general population regarding their disaster knowledge and medical skills and preparation for surviving in case of natural or an-made calamity occurrence. Comparing the basic components of society resilience to the answers provided by the participants has to be noted that general population is feeling unconfident in 8 out of the 15 resilience components. As the disaster medical preparedness is among the significant indicators of population resilience the authors are highlighting the necessity of continuation of the research related to the disaster medical knowledge and skills, in order to better understand the ordinary citizen need of education and training for achieving higher population self confidence as a prerequisite for more adequate, efficient and prompt activities in case of disaster event.

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