

## **REVIEW**

**by Prof. Dr. Krasimir Gigov, M.D.**

**Department of Emergency Medicine and Marine Medicine**

**Faculty of Public Health**

**Medical University "Prof. Dr. Paraskev Stoyanov" - Varna**

**Member of Scientific Jury, assigned by order № R-109-594/18.12.2020 of the Rector of MU-Varna**

**Subject:** Dissertation work for the award of scientific and educational degree "Doctor" (PhD) to the doctoral student Dr. Rositsa Vasileva Petrova on the topic "Floods - health and environmental problems for the Danube region" in the doctoral program: "Disaster Medicine", professional field: 7.1 Medicine

The doctoral student Dr. Rositsa Vasileva Petrova was born on April 8, 1971 in the city of Lovech. She became a Master of Medicine in 1995 at the Medical University of Pleven and a Master of Economics in 2004 at the Academy of Economics "Dimitar Apostolov Tsenov" in Svishtov.

In 2009 Dr. Petrova became a specialist in occupational medicine.

In the period 1996 - 2016 she worked as a doctor in the system of pre-hospital care and head of the occupational medicine service.

Since 2016 she has been an assistant professor in the Department of Hygiene, Medical Ecology, Occupational Diseases and Emergency Medicine Sector.

In 2020 she defended her second specialty Disaster Medicine.

She participated in a project on the topic - Study of the predictive values of human placental lactogen.

She is fluent in Russian high-level and with an intermediate level in French and English.

She was enrolled as a doctoral student in an independent form of study on September 16, 2019 at the Medical University of Varna, with a supervisor Prof. Dr. Hristianna Angelova Romanova, MD.

She successfully presented her work at the internal defence at MU-Varna.

The presented dissertation is 168 pages and includes 9 sections.

In the introduction, the doctoral student shows that of all natural disasters, floods are the most common natural disaster, with 10,000 floods occurring annually in the world, having various parameters, consequences and losses. In the period from 2005 to 2020, floods in the Republic of Bulgaria account for 40% of all natural disasters. One of the regions at risk from catastrophic floods in the Danube region are the rivers - Danube, Rusenski Lom, Vit, Osam, Yantra, Iskar and Ogosta.

The literature review is sufficient in volume and degree of information. It ends with interesting conclusions and explanations about the urgency of the problem.

The goal that the doctoral student has set for her dissertation is important for solving the problems related to the protection in this type of disasters, namely "To study and analyse the health and environmental problems for the Danube region, as well as the awareness and readiness of society for proper behaviour and flood protection".

Research tasks are well selected and sufficiently detailed.

The main thesis of the dissertation is that floods are the leading disasters for the Danube region and raising awareness and preparing the population for protection may reduce the significant negative effects of it.

Statement and materials: The present study deals mainly with the level of awareness and preparation for flood protection of the society in the Danube region (the population of two selected cities: Pleven and Svishtov, located in the Danube region Basins Directorate).

The necessary information was collected by the method of direct individual and anonymous survey, conducted in the period from May 2019 to May 2020. The collection of data from institutions was conducted in the period from March 2019 to March 2020.

The questionnaire was developed by the doctoral student and it was approved by the Department Council at the Medical University of Varna, by staff of Regional Directorate "Fire Safety and Protection of Population", Regional Health Inspectorate, Bulgarian Red Cross, District Administration - Pleven and Svishtov Municipality.

The methods used are sufficient in type and volume - historical, documentary, descriptive, comparative and sociological - survey, quantitative and statistical methods.

Own researches:

As part of the Task 1, an assessment of the risk of floods was made on databases of registered past floods. A total of 1903 past floods have been registered for the whole country. Of these, 1028 are placed in the column "significant past floods" and 573 are considered future, potentially significant.

Out of a total of 160 surface water bodies, experts define 119 as a "river" and 41 as a "lake". From the preliminary risk assessment for the Danube region: 49 water bodies are identified in risk, 20 in potential risk and 51 in good general condition. The year of risk assessment has not been specified as well.

The preliminary risk assessment for the Danube region data was collected on 744 past floods, of which 629 at the beginning of the assessment and after in-depth consultations, another 115 were included.

A certain amount of data on the particularities of floods in the Danube region have been collected and analysed, and important features have been noted. Data on widespread and extensive floods in the Danube region have been presented, as well as data on the affected population, health and environmental problems.

The possible causes of floods are well analysed in the municipalities of Pleven and Svishtov. The conclusions made are for the period 2005-2020.

The second task concerns the main tasks of the medical service (in particular health facilities) in situations of floods. Measures and basic means of protection.

The hospital care and the hospital infrastructure in the town of Svishtov have municipal participation in the management. For the district of Pleven, the hospital activity is of significance beyond municipal level.

Useful tools for the management of the health care institutions are the developed scheme for flood danger alert in a medical institution and the scheme for general distribution of entire population affected by the flood, after an incident for treatment and evacuation to the hospitals.

The analysis of the data confirms that a very good organization has been established for providing medical assistance to flood victims in both municipalities of Pleven and Svishtov” and “Properly organized events by the institutions (RD "PBZN", RHI and BRC) for protection of the population in the municipalities of Pleven and Svishtov”.

The third study analyses the awareness and readiness for flood protection of Bulgarian citizens in the Danube region aged 18 to 39 and 40 - 65 years. Comparison was made of the two age groups. A total of 240 people, residing in Pleven district and Svishtov municipality, were interviewed during the survey. A sociological method was used to study the awareness and preparedness for floods of the Bulgarian citizens in the Danube region.

The summarized data confirm that the percentage of unawareness of a potential flood threat is high - young group - 55%, mature - 75%. The awareness of both groups about the disaster protection plan is low, part "Floods" in large cities - 30%, in towns - 22% and villages - 14%. There is insufficient information about the organization of relief in floods – among people aged 18-39 years - 47% and among people aged 40-64 years - 38%.

Interesting findings were made; that the proportion of people who insured home and property is approximately twice higher in the young group (52%) as compared to the mature group (31%). The self-assessment about sufficiency of knowledge and skills of correct behaviour and protection in case of flood is low in both groups: young group - 36%, mature age group - 18%.

The majority - 81% of the young group and 70% of all respondents have answered “yes” to the question "Do you think that your knowledge of flood protection and behaviour should be improved?".

An important part of the dissertation is the development of protocols for the preparedness of hospitals in case of flood danger and outside the flood zone.

The following protocols are developed in detail:

- Management Actions
- Staff Actions
- Patient actions in the event of an evacuation
- Monthly calculations of the necessary vehicles to evacuate patients and staff.

A number of recommendations have been made to the following institutions: the General Directorate "Fire Safety and Protection of Population", the mayors of Pleven municipality and Svishtov municipality, employers in the municipalities of Pleven and Svishtov, the media, Ministry of Education and Science, Ministry of Health and Regional Health Inspectorates in Pleven and Veliko Tarnovo, the Bulgarian Red Cross, and the Basins Directorate in Pleven.

The general conclusions analyse and summarize the research made.

A significant number of figures, schemes, maps, etc. have been developed and attached.

The contributions of the dissertation are of high importance and in the most part, they are practically oriented: Scientific-theoretical and Scientific-applied.

The literature used includes a sufficient number of contemporary Bulgarian and foreign authors.

## **Conclusion:**

The dissertation on the topic "Floods - health and environmental problems for the Danube region" is relevant and meets the scientometric criteria, as well as the Regulations for the Development of Academic Staff of MU - Varna.

In view of the above, I am voting positively and I propose to the esteemed Scientific Jury to vote in favour and award the doctoral student Dr. Rositsa Vasileva Petrova the educational and scientific degree "Doctor" in the doctoral program "Disaster Medicine", professional field: 7.1 Medicine.

Signature:  
(Prof. Dr. Krasimir Gligov, M.D.)

