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Original article

THE REAL READINESS TO DEAL WITH CITIZENS TEMPORARILY RESIDING IN THE CITY OF PLEVEN WITH CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) TERRORISM

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ABSTRACT

Urbanization and population density in the city of Pleven create the conditions for anthropogenic disasters involving modern hazards such as disease-causing microorganisms, toxins, dangerous chemicals, hazardous weapon substances, radiation, and nuclear explosions.

The study was conducted under project No. 13/2022 at MU - Pleven, involving 240 foreign citizens from 31 countries. The participants were divided into two age groups: 18 to 25 years (64%) and 26 to 35 years (36%). Their duration of stay in Pleven was categorized into up to 5 years (54%) and over 5 years (46%). Interestingly, more than 50% of the participants had experienced more than one distress situation before.

The study used a sociological method to examine the readiness to protect themselves during disasters. The results revealed alarmingly low levels of awareness regarding anthropogenic disasters or terrorist acts in the city of Pleven, with only 15% and 5% of respondents being aware of them, respectively. Furthermore, over 60% of the respondents did not know who organizes aid for the population during disasters.

Both age groups demonstrated inadequate knowledge and preparedness in dealing with a biological weapon infection outbreak. About 53% of participants did not know what to do in case of danger, 75% were unaware of the emergency phone number during disasters, 56% could not provide first aid to victims, and 64% lacked knowledge of appropriate actions in the event of a terrorist act.

Keywords: biological agent, biological weapon, war, chemical substances, radiation, defense preparedness, public health,

INTRODUCTION

According to official data of the "Demography" Information System, 3.4% of the population of our country live and work in the Pleven region. The average density is 58 people per square kilometer, distribution in cities - 66%, in villages – 34%.

Of the entire population, 49.1% is in the city of Pleven, which makes it a highly urbanized center, the seventh largest in Bulgaria. At Medical University - Pleven, for more than 20 years, students from all over the world come to study and specialize in medicine. They temporarily reside in Pleven for 6 to 10 years.

During ceremonies, scientific conferences, congresses, important international events, their loved ones, relatives, medical specialists from all over the world stay in the city. Density, urbanization, globalization are prerequisites for anthropogenic disasters of a modern type of striking factors (disease-causing microorganisms, toxins, dangerous chemicals, war poisonous substances, radiation, nuclear explosion).

PURPOSE

The purpose of this study is to investigate awareness and willingness to protect in the event of biological, chemical, and nuclear weapon incidents.

MATERIALS AND METHODS

A study was conducted from 01.12.2021 to 01.12.2022, focusing on foreign citizens temporarily residing in the city of Pleven. These individuals come from 31 countries, with 155 from European Union Member States (Germany, France, Italy, Spain, Greece) and 85 from countries outside the EU (UK, Ireland, India, Japan, Turkey, Korea, China, Canada, Sri Lanka, Lebanon, Yemen, Libya, Egypt, Zimbabwe, Turkmenistan, Kosovo, Ukraine, Russia, Libya, Egypt, Pakistan, etc.).

The study employed a selective sociological survey conducted through a standardized poll, which was personally developed by the researchers participating in

Project No. 13/2022 at the Medical University of Pleven. The survey was conducted anonymously.

Based on their age, the study participants were divided into two groups: the first group comprised individuals aged 18 to 25 years (64%), and the second group consisted of individuals aged 26 to 35 years (36%). The higher percentage in the first group can be attributed to the fact that they initially arrive for training in a master's program in medicine, and after graduation, some of them choose to remain in Pleven for specialization. The participants were also divided based on their length of stay in Pleven: 54% had a stay of up to 5 years, while 46% had a stay of over 5 years.

RESULTS AND DISCUSSION

Security experts from the Council of Europe have warned of a growing risk of chemical, nuclear or biological terrorism. Modern terrorism in its various forms is directed against the civilian population. This requires improvement of the preparation of the population for action in the event of disasters.

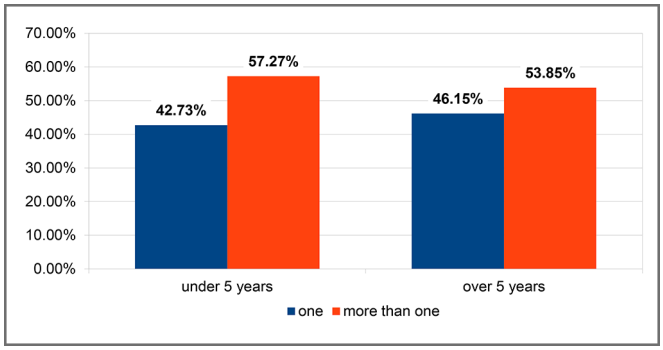
Modern terrorism in its various forms (chemical, nuclear, biological) is deep down, not aimed at the army but at the civilian population. Regardless of the fact that the main core that liquidates the consequences are the military units. In recent decades, dramatic changes have occurred throughout the world, a trend towards an increasing spread of international terrorism, changes in the ideology, motivation and means of achieving their goals by terrorist groups is noticeable. The global spread of information amplifies the effect and turns modern terrorism into a huge potential threat to human society.

More than ever, we need awareness, competence, preparedness, and correct behavior for protection in case of chemical, nuclear or biological terrorism.

From the surveyed 240 participants in the study, over 50% of the two analyzed groups noted that they have experienced more than one disaster situation (Fig. 1). There are no participants in the study who have not experienced a disaster situation.

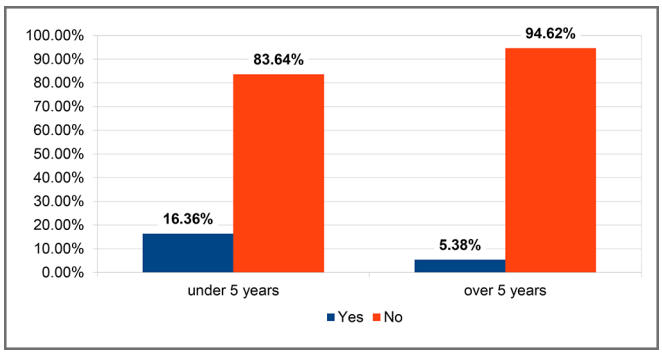
Over 50% of the two analyzed groups noted in the survey that they had experienced more than one disaster situation (fig. 3). There are no study participants who have not experienced a disaster situation.

Fig. 1. Distribution of experienced disasters by a stay in Bulgaria



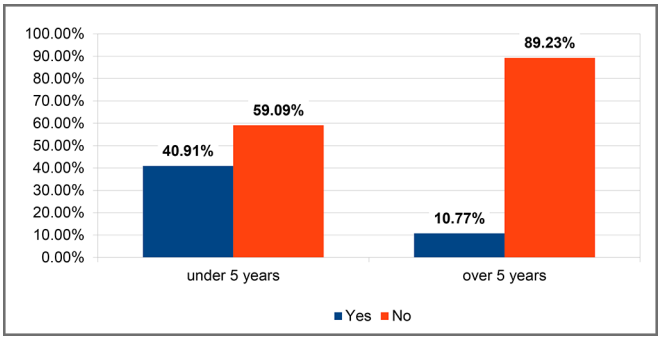
Awareness of the potential risk of anthropogenic disaster is alarmingly low: first group -15%, second - 5% (fig. 2). As the number of years of temporary stay in the city increases, there is a tendency to decrease awareness among foreign citizens. This means that they have a weak and insufficient mental and physical attitude for proper behavior in a critical situation.

Fig. 2. Distribution of awareness of the potential threat of disaster by staying in Pleven



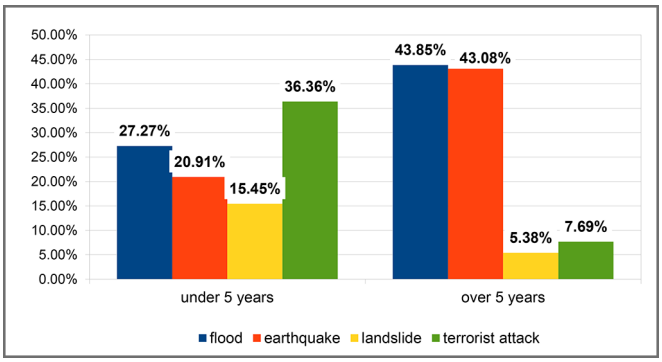
To the question "Who organizes the assistance of the population in a disaster situation, the first group with a stay of up to 5 years." 60% do not know, the second group with a stay of more than 5 years. - 90% (fig. 3). In the event of a real anthropogenic disaster or terrorist act, temporary residents do not know who to turn to for help and support.

Fig. 3. Knowledge of the organization in disasters, distributed by a stay in Pleven



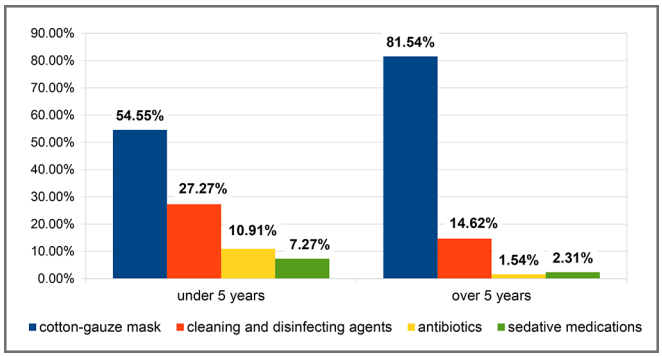
To the question, "Which of the mentioned disasters do you consider to have the greatest risk of an epidemic?" The first group of respondents gave a 25% correct answer, the second group – a 45% correct answer (fig. 4). More than 50% of participants do not know that a potentially catastrophic flood is the main reason for the deterioration of sanitary-hygienic conditions in a flood zone and leads to the outbreak of infectious diseases, with the risk of development in the epidemic. Uninformed persons in the disaster area can create serious problems.

Fig. 4. Opinions about the causes of the epidemic, distributed by a stay in Pleven



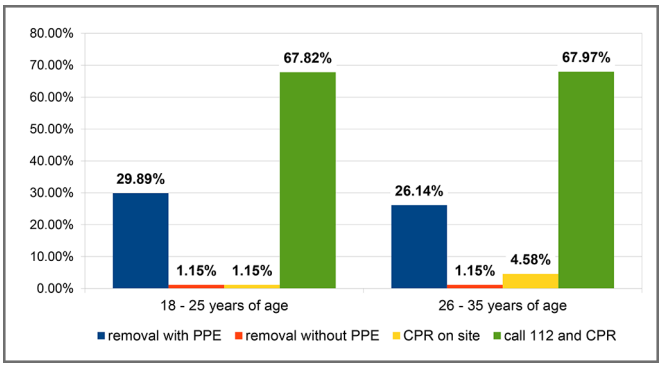
What protective equipment should they have in case of bioterrorism or gassing? The first group gave a correct answer 55%, the second 80% (fig. 5).

Fig. 5. Opinions about the means needed in case of bioterrorism, distributed by a stay in Pleven



In the case of a chemical warfare agent incident, both groups - 65% know what is the first thing to do (Fig. 6).

Fig. 6. Opinions about the necessity of actions in the event of an incident with a chemical warfare agent, distributed by age



There is insufficient information on which phone to call in case of a disaster, accident or terrorist act, 75% give the wrong one, 56% of all answers cannot provide first aid to the victim (fig. 7 and fig. 8). At the Medical University - Pleven, it is mandatory to provide theoretical and practical first aid to victims in the focus of the defeat until the arrival of the rescue teams. The obtained low results give grounds for considering and creating additional training courses for foreign citizens temporarily residing in the city.

Fig. 7. Knowing the emergency phone number

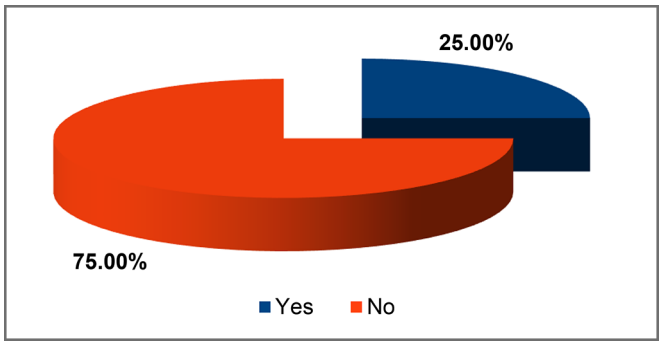
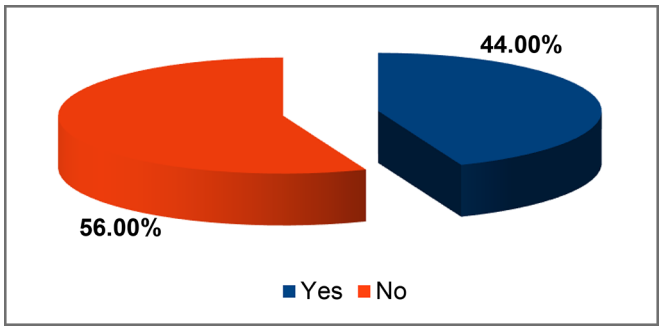
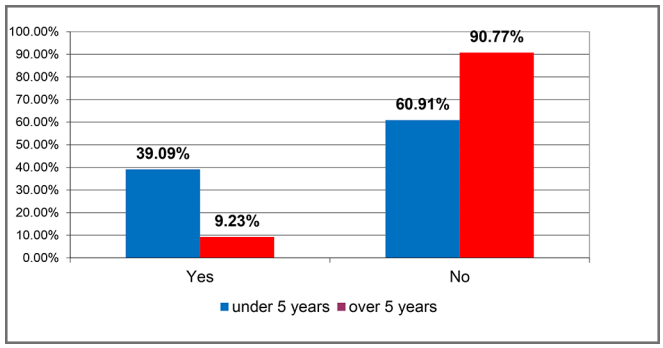


Fig. 8. First aid training conducted



Awareness about the effectiveness of collective means of protection - hiding places, shelters (fig. 9) is low and insufficient. For the same, they do not know where they are and how to get to them safely.

Fig. 9. Knowledge of the collective remedies for staying in Pleven



When using a biological weapon or in conditions of an epidemic, or a pandemic, 53% do not know individually where they will be safe, 64% do not have enough knowledge about proper behavior and protection in matters and cases of disaster origin (Fig. 10, Fig. 11).

Fig. 10. Behavior in the use of biological weapons or in the event of a potential epidemic, or pandemic, distributed by age

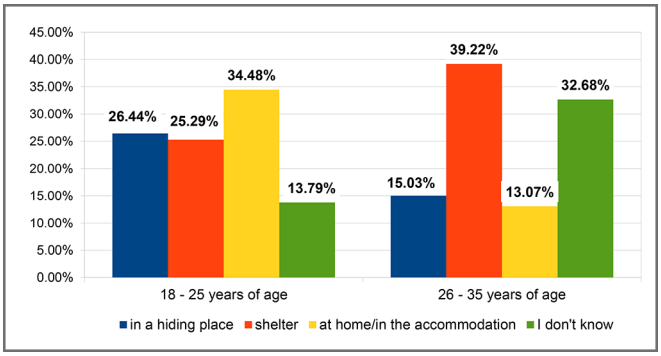
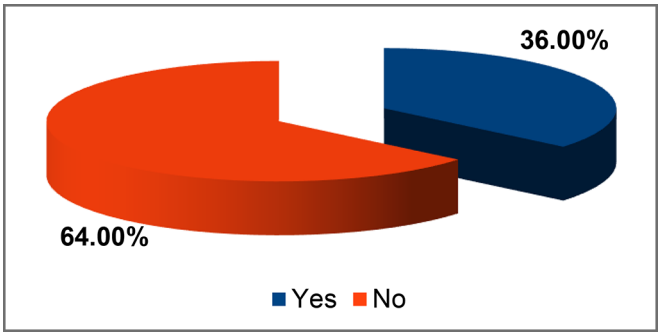


Fig. 11. Opinions about sufficient knowledge for actions in a disaster situation



The use of poisonous chemical substances and dangerous microorganisms for military purposes has been known since ancient times: Ancient Hellas, Egypt, Persia. As early as 184 BC, the Carthaginians used poisonous snakes during warfare. [1, 2, 3, 4]

Later in the Middle Ages, various poisons were used during the siege of fortress cities: incendiary mixtures containing sulfur, resin, asphalt, oil, when they were burned, suffocating, unbearable gases were released. [4]

In 1798 in the dictionary of the French Academy of Sciences, the term "terrorism" appeared for the first time. The word "terror" is Latin and means fear, terror. At the moment, there is no legal definition of the concept, but it can be defined as a socially dangerous act in which force is used to threaten and achieve certain political goals [1, 2, 3].

In 1813 Hydrocyanic acid was first proposed as a war poison, 1912. The French police were armed with grenades containing chloroacetone and, two years later, bromoacetone. Chemical weapons were most widely used during the First World War. 15,000 English and French soldiers were affected by the chlorine gas balloon attack of the German army, 5,000 of them died from acute suffocation [4].

Chemical terrorism is one form of terrorism. Apart from the classical poison warfare agents synthesized for the purpose of chemical warfare in the early 20th century, many chemicals applied in agriculture and life can be used for the purpose of bringing turmoil [1, 2, 3, 5].

Currently, 193 countries have signed the Chemical Weapons Convention, the Republic of Bulgaria joined in 1993.

During the Cold War, a number of biological agents were developed to affect, infect and destroy large numbers of people.

The use of microbial agents during warfare and conflict can be defined as biological warfare or biological terrorism. According to the WHO definition (1999), biological weapons are materials containing biological agents or toxins, regardless of their origin and method of production. Biological weapons, similar to chemical weapons used in the army or during war, aim for human casualties [1, 2, 3, 5].

In 1995 in one of the stations of the Tokyo subway, a religious sect Aum Shinrikyo spreads nerve-paralyzing gas sarin, 12 people died on the spot, 5,000 seek medical help in nearby hospitals [1, 2, 3, 5].

The use of biological agents has significant advantages over the use of chemical substances for mass destruction [1, 2, 3, 5]

Biological warfare can be defined as international, aiming at the death of people, mainly from large cities (megapolises). The biological weapon has a number of "advantages" compared to chemical weapons: it can be used covertly, there are no external signs at the beginning, there is a long latent period, the manifested symptoms are nonspecific, resembling endemic infectious diseases, it can be applied in combination, it gives a huge psychological effect, stricken and diseased individuals require long-term medical care [3, 5, 6, 7]

Leading security experts from the Council of Europe (2020) warn of a growing danger of terrorist attacks using biological, chemical or nuclear weapons. The organization's report emphasizes that the fading COVID- 19 pandemic is a reason for inspiring terrorists to carry out such attacks. The pandemic that began as an epidemic in Wuhan (2020) showed how vulnerable modern human societies can be through viral infections. Started from 24.02.2022. the war between Russia and Ukraine also harbors threats from the use of nuclear weapons. When an atomic bomb explodes, in a millionth of a second, a huge amount of internal nuclear energy is released, which is accompanied by a significant increase in temperature in the reaction zone [3, 5, 7]

Risk of anthropogenic disasters for the city of Pleven.

The main legislation for the protection of the population and disaster management in the city of Pleven is the Disaster Protection Act (DPA) [SG No. 102/19.12.2006] [8]

The Council of Ministers of the Republic of Bulgaria has approved a National Strategy for Disaster Risk Reduction for the period 2018-2030, which includes an in-depth analysis of the current situation and a number of key values that should support it [9]. The Republic of Bulgaria has developed a National Disaster Protection Program 2014-2018, which defines goals, priorities, and tasks for protection [10].

Radiation contamination is possible in the event of

a potential accident at Kozloduy NPP, cross-border transfer of radioactive substances from an accident at Cherna Voda NPP R. Romania, located 300 kilometer away from the city of Pleven [6, 11-17].

Over 11 sites in the city operate and store technological sources of ionizing radiation. Failure to comply with the requirements for safe work and improper transportation may lead to accidents, with the formation of local radiation deposits [11 - 17].

At ceremonies related to the graduation of foreign students, international conferences, congresses and others, when many people gather in a hall, it is potentially possible to apply a chemical, biological impact or a nuclear explosion [12, 14, 15, 17, 18, 19].

Temporarily residing foreign nationals from all over the world, upon arrival and departure, can potentially be carriers of various disease-causing viruses, bacteria and thus cause epidemic outbreaks [7, 12, 14, 15, 17, 20, 21].

CONCLUSIONS

The study revealed a low degree of awareness and a lack of readiness among respondents to adequately protect and defend against disasters involving biological, chemical, and nuclear weapons. All respondents had experienced at least one disaster situation, with some having experienced multiple incidents. The level of awareness among respondents about potential risks in the city of Pleven was found to be alarmingly low.

Foreigners residing in Pleven were generally unaware of the procedures and organizations responsible for disaster response and support for the population. They lacked knowledge about emergency phone numbers and contact details for emergencies. Additionally, foreigners temporarily residing in Pleven were not adequately trained to provide first aid to victims.

The observed trend of decreasing awareness with an increase in their stay duration in the city suggests a lack of interest among the surveyed individuals and insufficient efforts by officials responsible for educating and training the population.

The survey highlights the need to expand awareness activities for foreigners and provide further training on first aid for victims. Urgent measures are necessary to ensure the safety and well-being of foreigners on the territory of Pleven, considering the anxiety-inducing trends observed.

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