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Assessing the Current Healthcare System Capacity in Kosovo to Address Potential Risks of Climate Change Extremes

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Abstract

BACKGROUND: Climate change (CC) threats to public health in Kosovo include changes in rainfall and extreme weather conditions (heat waves, rising average temperatures, floods, and droughts). Such changes can affect the physical, mental health, and well-being of the population, also potentially adversely affecting the functioning and physical infrastructure of the healthcare system.

AIM: The aim of the study was to conduct a CC vulnerability assessment in selected healthcare facilities and workforce in Kosovo.

METHODS: The World Health Organization standard checklist was used to assess weaknesses and level of preparedness in six healthcare facilities in the context of CC for three extreme situations of exposure (heat waves, floods, and droughts).

RESULTS: During heat waves and floods the weak points identified are: The infrastructure, technology process, healthcare workforce preparedness, and process of waste treatment. In some regions (Mitrovica and Peja), the risk is even higher in the absence of sufficient health staff. The hospital in Gjilan shows the highest level of unpreparedness to cope some CC extremes. The western part of the country has a higher risk of frequent floods. The lack of an emergency plan to protect health workers from numerous biological and chemical risks increases the risk of negative effects of floods.

CONCLUSIONS: The findings of this study confirm various types of vulnerabilities and weaknesses in the healthcare facilities in Kosovo for all areas of assessment (health workforce preparedness, level of adaptation of the current system, infrastructure, technologies, and sustainability). The health outcomes of CC jeopardize the provision of good quality healthcare services. A short list of priorities is recommended to minimize the various types of vulnerabilities.

Introduction

Climate change (CC) is undoubtedly a global phenomenon that poses a significant threat to human health. Presenting it as "the biggest global health threat in the 21st century," the World Health Organization (WHO) estimates that due to CC, there will be an additional 250,000 deaths per year from 2030 to 2050, most likely due to malnutrition, diarrhea, malaria, and exposure to excessive heat [1]. CC threats of particular interest to public health include changes in rainfall, extreme weather conditions such as heat waves, rising average temperatures, floods, and droughts. Such changes can affect the physical and mental health and well-being of the population, while potentially also adversely affecting the functioning and physical infrastructure of the health system.

Among the extremely high number of publications on the health risks and effects of CC, three sets of literature data are predominant. One group provides findings on proven or potential effects of CC on population health, a second group monitors health effects under projected climate representative concentration pathways (RCP) scenarios by 2100, and a third group present's experiences of CC effects on health systems. The most prevalent is the scientific literature that proves or predicts the adverse health impact of increasing heat-related deaths or illnesses from rising temperatures. The health effects of CC are mainly divided into two groups: Climate-sensitive diseases (such as malaria, dengue, diarrheal diseases, and respiratory infections) and climate-sensitive health outcomes (cardiovascular and respiratory diseases, undernutrition, injuries, and impact on mental health) [2].

Climate extremes such are droughts, heat waves, or fires, bring another layer of vulnerability to already highly vulnerable groups, and affect those whose means of life depend on the affected sectors. In the periods of the RCP projected climate scenarios, an increased number of deaths are expected in the vulnerable groups, but also an increased number of diseases sensitive to CC [3]. Further risks include indirect effects of higher temperatures, such as increased infectious transmissible diseases, tick-borne diseases (Lyme disease), prolonged seasons of pollen allergies, and an increased number of water and foodborne illnesses (e.g. salmonellosis and gastrointestinal infections). An increase in an adverse

impact on mental health, especially after the damage of the goods and properties and loss of loved ones, is also reported, ranging from minimal stress to clinically manifested disorders – depression, anxiety, or post-traumatic stress [4]. One study broadens the horizon and goes further by analyzing the potential long-term effects of CC on global health and includes effects such as population dislocation, famine, and environmental justice and education [5].

Fewer research activities were noticed in assessing the effects and risks to the health sector. Namely, extreme climate events do not only lead to health system disruption (evacuation, material damage, power outages, etc.) but also, may prevent or limit people from getting access to health facilities. The closure of a part of the hospitals due to such an event leads to the overburden of the other health care capacities, especially emergency departments or supply chains of medicines or medical devices that affect severely the quality of the health care. Finally, yet importantly, the impact of CC-related events on the healthcare workforce should not be neglected, "climate change not only disrupts their lives but also makes their jobs more challenging, raising the risk of burnout" [6]. Therefore, the health workforce needs to be well-trained to provide and deliver health services in those changed and difficult circumstances as quickly and efficiently as possible.

In this regard, it is very important to facilitate the process of assessing the CC vulnerabilities of the health sector facilities. Therefore, WHO has developed an operational framework for building climate-resilient health systems and a tool to guide and implement a unified systematic approach in the member states for the health system to respond effectively to the challenges posed by CC [7]. The tool allows countries to evaluate which populations and specific geographies are most vulnerable to different kinds of health effects from CC identify weaknesses in the systems that should protect them and specify interventions to respond. Basic and flexible guidance on conducting a national or subnational vulnerability and adaptation assessment of current and future vulnerability to the health risks of climate variability and change and the policies, programs, and capacities of health systems that could increase resilience, taking into account the multiple determinants of climate-sensitive health outcomes, is essential [8]. In this assessment process, highly important is also the need to increase the knowledge and skills of health care professionals in understanding and monitoring the climate-sensitive health crisis and outcomes. The tool assists healthcare facility officials in assessing their resilience to CC threats, and environmental sustainability based on the appropriate use of resources (water and energy and sustainable procurement), and the release of hazardous materials (biological, chemical, radiological) into their surrounding environment [9].

The objective of this study is, in the absence of any strategic document or comprehensive and valid research on the topic of CC and health risks in Kosovo, to conduct a CC vulnerability assessment in selected healthcare facilities and workforce as one of the highest priorities.

Methodology

We used the WHO standard checklist [2] to assess the vulnerabilities of six healthcare facilities in different regions in Kosovo in the context of CC-related extreme situations of exposure (heat waves, floods, and droughts). Face-to-face checklist was completed in consultation with the responsible persons in these institutions such as the director, doctor of emergency services as well as leaders of technical services (Table 1). Following the prescribed methodology, we went through three steps of the assessment: To identify the climate hazard with a higher probability of happening in Kosovo and that could affect the healthcare facilities; to assess the current vulnerability of the facility which includes the geographical location; and the third step, to explore whether the basic defined requirements (i.e. health workforce; Water, Sanitation and Hygiene (WASH) and healthcare waste services, energy services, and infrastructure, technologies, products, and processes) could be impacted by the hazard.

Table 1: Healthcare institutions assessed climate change vulnerability in Kosovo and contact persons

Health Institution	Contact person
University clinical center of Kosovo – KKUK, Pristina	Director/technical services manager
General Hospital "Dr. Sami Haxhibeqiri", Mitrovica	Director/Technical Services Manager
General Hospital in Gjilan	Doctor specialist of emergency Center/Technical services manager
General Hospital in Peja	Technical services manager
General Hospital "Isa Grezda", Gjakova	Technical services manager
General Hospital "Prim. Dr. Daut Mustafa", Prizren	Technical services manager

Tables to assess vulnerabilities are in the form of questions to identify if a healthcare facility is implementing measures to respond to climate hazards and eventually avoid potential damage and disruptions to service delivery. The level of vulnerability (unpreparedness) for each item in the list could be assessed as "high" (unprepared or unable to respond), "medium" (basic or incomplete preparation or low level of response), or "low" (prepared or able to respond).

Results

Region and population exposed - a basic statistic

Demographic trends, including aging societies, pose new challenges to healthcare systems. Aging

societies tend to require added capacities to treat complex and chronic diseases and longer hospital stays. Just over half of Kosovo's population lives in rural environments. The country's gross domestic product was approximately US$6.4 million in 2015, with most derived from services, industry and the remainder from agriculture. According to the World Bank (WB) diagnostic report of the climate profile and CC future scenarios for Kosovo and the region, the main identified climate extremes that could affect public health are the increase in the average temperature and the number and duration of the heat waves. These could be followed by an increase in extreme precipitations and floods as well as a decrease in the quality and quantity of drinking water [10].

The areas of study, which include six cities and their basic population data and population projections, are presented in Tables 2 and 3. In 2022, the total number of populations covered by this assessment represents 31.7% of the total population in the country (1,762 220 residents). Among the Western Balkans and Türkiye, Kosovo[1] has the highest share of young people (24.0%; 2020 data) and Türkiye (22.8%; 2021), while the lowest share was in Serbia (14.3%; 2022) [11].

Table 2: Total population estimated (31 December of the chosen year) in the selected cities, 2022

Total population estimated	
Gjakova	92021
Gjilan	70587
Mitrovica	67652
Peja	79631
Pristina	195326
Prizren	52881
Total cities	558098
Total Kosovo	1762220

Source: Kosovo Agency of Statistics. 2024.

According to the Kosovo Agency of Statistics projections until 2061, the total number of the population will decrease but the most important is the decreasing trend of the population aged 0–14 (for almost 50%). It is projected that even a threefold increase in the population aged 65+ (from 8% to 27%) as one of the most vulnerable population groups on possible CC health impacts (Table 3).

Table 3: Population estimation for the period 2017–2061

Year	Total	0–14		15–64		65+	
	#	#	% of total	#	% of total	#	% of total
2017	1783531	446633	25	1192181	67	144718	8
2061	1492192	199518	13	892803	60	399871	27

Source: Kosovo Agency of Statistics. Kosovo population projection 2017–2061.

The aging population trend was reported also by the European Union (EU). The share of those aged below 15 decreased from 16.4% to 14.9% between 2003 and 2023, while in the same period, the share of those aged 80+ increased from 3.7% to 6.0% [12].

1 This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Results of the assessment

Heat waves and floods are predicted as the main CC risks for Kosovo. Our findings show that in such circumstances the main weak points in the healthcare facilities are the infrastructure and technology process followed by the weaknesses in the healthcare workforce preparedness and the process of waste treatment (Tables 4-7). Regarding the health workforce and the response to heat waves, a lack of a plan for drinking water supply for health workers, light cotton clothes, hats, and sun cream was reported but also should be foreseen and carefully planned in the future. The Ministry of Health (MoH)/National Institute of Public Health (NIPH) through its website continuously provides information on the risk of heat waves, the adverse effects on health, and advice for the population and vulnerable groups on how to act in heatwave situations.

In the regions of Mitrovica and Peja, the risk becomes even higher in the absence of a sufficient number of health staff. Among the hospitals assessed, the hospital in Gjilan shows the highest level of unpreparedness to cope with the particular CC extremes (Table 4).

During floods, the situation is different because floods as a phenomenon are more characteristic for the Dukagjin region (Peje, Kline), and precisely in this region, we have less workforce (Tables 6 and 7). In the region of Mitrovica, which includes Skenderaj, there were frequent floods with serious consequences. The lack of an emergency plan to protect health workers from numerous biological and chemical risks increases the general risk of negative effects of floods. Planning training and equipping workers with personal protective equipment (boots, glasses, gloves, and masks), especially for cleaning teams, is necessary to reduce the risk of flooding in the facility and the local community.

Among the serious weaknesses, we identified also a lack of technical staff trained to take care of the security of the electricity supply as well as the equipment with clear instructions for the entrances and exits to the facility during flood emergencies and the way for safe evacuation of the patients and health workers.

After examining and interpreting the responses of the interlocutors, we assessed a lower level of risk during drought than for the other two climate extremes (Tables 8 and 9). The plain of Kosovo, respectively, the region of Gjilan, is characterized by frequent periods of drought and water scarcity. This will increase the need for a healthcare workforce, staff training, and preparing drought adaptation plans. It is necessary to raise awareness of the preservation of water for human consumption and the preservation of food from the influence of very high temperatures. This also includes the need for an early warning system in case of water and food contamination and taking measures for the treatment of diseases related to the drought. Raising

Table 4: Level of healthcare facilities preparedness (in %) to climate hazard (Heatwaves) in different cities in Kosovo

Heatwaves	Health workforce			Water, sanitation and hygiene and waste			Energy			Infrastructure, technology, and product process		
City	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Pristina	44	50	6	10	45	45	12	16	72	30	20	50
Mitrovica	17	22	61	10	35	55	10	10	80	25	14	61
Gjilan	45	33	22	25	50	25	39	6	55	25	22	53
Peja	40	22	38	15	45	40	12	5	83	22	22	56
Prizren	28	50	22	25	50	25	11	11	78	34	25	41
Gjakova	34	44	22	15	55	30	11	1	88	28	19	53

the knowledge and skills in the community for the social, economic, and health aspects of the impacts of the drought, could contribute to reducing the risk.

Table 5: Level of healthcare facilities preparedness* (in %) to climate hazard (Heatwaves), summary of Kosovo

Vulnerability	High	Medium	Low
Health workforce	34.6	36.8	28.6
Water, sanitation and hygiene and waste	16.6	46.7	36.7
Energy	15.8	8.2	76
Infrastructure, technology, and product process	27.3	20.4	52.3

*High: Unprepared (high risk); Medium: Basic to incomplete preparation, low level of response (medium risk); Low: Prepared, able to respond (Lower risk).

When summarizing the findings from the Checklist survey, the level of risk (unpreparedness of the system to cope with the hazard) can be considered as medium in almost all assessed facilities (Table 10).

This finding is more due to the lower probability of these extremes occurring than to the actual readiness of healthcare facilities to deal with hazards. Another reason could be the insufficient technical knowledge of the interlocutors. Therefore, this finding in the matrix of risks should not exclude the urgency of the necessary changes in the health system.

Discussion

The WB assessment of current national and regional emergency preparedness and response capacities was conducted in 2020 in five Western Balkan nations (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Kosovo). The overall score of performance of Kosovo was 174 out of 360, while North Macedonia has an overall score of 165 out of 360 [10], [13]. According to this assessment, Kosovo's population is exposed to CC and geological hazards; such are floods, heavy snowfall, drought, forest fires, and earthquakes. The regions of Mitrovica, Pristina, Peja, and Gjakova are prone to landslides, riverine floods (in plains), and cloudbursts. The western part of Kosovo (Drin basin) is highly exposed to floods where every 2–3 years floods occur. Between November 2007 and June 2008, 3500 people were displaced due to the floods, and material damage of the homes and the agricultural land led to a request for humanitarian aid from the international community.

The WB report for Kosovo mentioned above emphasized that the new challenges such as CC, migration, and pandemics need more attention and investment in terms of professional capacity building, replacement, and expansion of equipment, especially for basic search, rescue, and firefighting and communication technology.

During the COVID-19 pandemic, an Emergency Operating Center (EOC) was established in Kosovo. EOC at the level of the health sector has been established within the MoH and the NIPH, with the main idea of this center to be activated in every other emergency. However, our findings showed that a Hospital Emergency Committee is planned to be established but also, that written emergency hospital plans are missing. The implementation of the Hospital Safety Index in Serbia and Croatia revealed the problem of the age of health facilities, which may bring a certain structural safety aspect. It was observed that many buildings of health facilities are old, built between the 1930s and 1960s [14]. The hospitals in Kosovo covered by this research also date from this period.

Health workforce

As written above, one of the main weaknesses we have registered in the preparedness of the healthcare facilities to cope with CC and hazards generally in Kosovo is the lack of a sufficient number of healthcare workforces and their current level of knowledge and skills to cope with hazards. During emergencies, both natural and man-made, a well-prepared health workforce is "the lifeblood of any health system and is critical when countries are faced with life-threatening emergencies," not only a requirement under the International Health Regulations (2005). Building such a health workforce includes a couple of components: mass casualty incident management training; public health emergency management; infection prevention and control, and laboratory services. Healthcare workers "must be trained in emergency procedures, equipped with the appropriate protective equipment, and given access to the communication networks" [15], [16].

The role of the health workforce is vital in all phases of emergency risk management starting from prevention through preparedness, response, and recovery phase. The latest findings suggest that the situation led to the deterioration of the working conditions, their relations with other health professionals, and their ability to carry out their essential work in the public health system. This unexpected situation brought to light a new moment "Differences relating to professional

Table 6: Level of healthcare facilities preparedness (in %) to climate hazard (Floods) in different cities in Kosovo

Floods	Health workforce			Water, sanitation and hygiene and waste			Energy			Infrastructure, technology, and product process		
City	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Pristina	25.9	33.4	40.7	21	36	43	13	7	80	23	52	25
Mitrovica	12	44	44	20	25	55	5	5	90	19	39	42
Gjilan	14	60	26	18	32	50	5	5	90	20	40	40
Peja	19	52	29	28.5	25.5	46	7	0	93	21	37	42
Prizren	11	56	33	25	29	46	0	7	93	23	37	40
Gjakova	14	60	26	21.5	28.5	50	5	5	90	22	38	40

background were exacerbated during the pandemic, creating unequal conditions for different health workers" [17], [18]. In addition, health professionals do not feel well prepared to work under emergencies including ones related to CC. The issue of insufficient education of the medical students at the health education institutions that do not address CC sufficiently led to the initiative of this topic to be addressed on COP 26 and to the commitment of the countries to adapt and develop climate-smart health care [19].

Table 7: Level of healthcare facilities preparedness* (in %) to climate hazard (floods), summary of Kosovo

Vulnerability	High	Medium	Low
Health workforce	16	51	33
Water, sanitation, and hygiene and waste	22	30	48
Energy	5.8	4.8	89.4
Infrastructure, technology, and product process	21.3	40.5	38.2

*High: unprepared (high risk); Medium: Basic to incomplete preparation, low level of response (medium risk); Low: Prepared, able to respond (Lower risk).

WASH, and healthcare waste management

Proper provision of safe water for drinking, washing, and domestic activities, safe removal and final disposal of waste, and health promotion of behavioral practices amongst the affected population during and after a disaster, lead to decreased risk of several diseases (diarrhea, hepatitis A, cholera, typhoid, dysentery, intestinal helminths, etc.). In terms of the health sector performance, improper WASH services can restrict medical treatment in healthcare facilities, the functioning and safe practices of health workers, and lead to increased community vulnerability [20]. Basic food and water distribution and provision during emergencies in Kosovo is under the mandate of the local municipality together with the Public Health Centers and the Red Cross volunteers [10].

Regarding water and sanitation, we found out that the health institutions are well coordinated with regional drinking water supply companies that during emergencies can provide water from alternative sources or tanks. Water quality control and monitoring are done routinely (regularly) by the Regional Institutes of Public Health and the Water Quality Center at the National Institute of Public Health of Kosovo which owns the database with data on water quality according to the EU Drinking Water Directive [21]. Water supply companies also control the quality and take technical measures to ensure the quality of drinking water. The National Institute of Public Health is well coordinated with these companies being also a part of the Intersectoral Council for Water on the Government level.

Sustainable energy services

All healthcare institutions in Kosovo have regular electricity supply and have proper communication with respective companies in case of interruption of electricity supply. All institutions have isolated reserve generators that are activated within 2 s in the event of a power outage. These generators are maintained by technical workers and checked daily. However, the number of technical staff is insufficient, so it seems in the future, this number needs to increase to ensure the continuity of the working process and also the safety of the health workers and patients in these institutions, especially after flooding. During floods, the contact of water with electricity represents a risk, therefore, before the energy is restored, professionals are needed to inspect and ensure the integrity of the electrical system. Such or similar instructions or procedures are missing in health institutions.

Following the current trends and initiatives in terms of the establishment of climate-smart healthcare systems, the health sector is supposed to be aware of its contribution to CC and its related impact on public health. Striving to reduce its emissions, the health facilities included in this research are starting the initial steps in that direction. Although awareness about electricity saving has recently been raised, health institutions still do not have set a plan or guidelines to determine ways to reduce the overall use of electricity. In recent years, it has been invested in the insulation of buildings and almost the majority of them have proper insulation and installed solar devices primarily used for water heating. Still, solar energy is not used to power critical equipment.

Infrastructure, technologies, and products

Poor infrastructure exacerbates health risks in the population affected while quality infrastructure is essential for effective health care services. Resilient electricity, water, transport, communication, and digital systems are crucial to ensure adequate treatment, equitable access to health care, and functioning supply chains. The use of new technologies (drones for example) can help in mitigation of the supply chain vulnerabilities. Therefore, undertaking actions to strengthen infrastructure resilience is contributing to more effective health risk management and health services [22].

Institutions assessed in this survey are equipped with air conditioning, but not in all departments. They have

Table 8: Level of healthcare facilities preparedness (in %) to climate hazard (Drought) in different cities in Kosovo

Drought	Health workforce			Water, sanitation and hygiene and waste			Energy			Infrastructure, technology, and product process		
City	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Pristina	9	59	32	8	37	55	6.5	31	62.5	26	37	37
Mitrovica	4.5	41	54.5	11	26	63	0	31	69	21	32	47
Gjilan	14	63	23	11	52	37	12	63	25	44	24	32
Peja	18	50	32	26	26	48	0	31	69	30	31	39
Prizren	9	59	32	11	37	52	0	31	69	29	37	34
Gjakova	18	55	27	11	37	52	0	31	69	32	34	34

sufficient lighting, windows that open and provide natural ventilation, and blinds that protect from the heat. In case of overheating during heat waves, the facility does not have any plan to evacuate patients to a cooling area. It could be also a problem as there is not a functional system with electronic health data of the patient to be made available in case of the need to evacuate patients to another facility (in case of floods for example). The roofs are isolated and usually red. The yards have green spaces that provide shade, and the sidewalks and parking lots are marked, while the care and maintenance of the outdoor space are done in agreement with relevant companies that deal with this work.

Table 9: Level of healthcare facilities preparedness* (in %) to climate hazard (Drought), summary for Kosovo

Vulnerability	High	Medium	Low
Health workforce	12	55	33
Water, sanitation and hygiene and waste	13	36	51
Energy	3	36	61
Infrastructure, technology, and product process	30	32	38

*High: Unprepared (high risk); Medium: Basic to incomplete preparation, low level of response (medium risk); Low: Prepared, able to respond (Lower risk).

The WB diagnostic report emphasized the concerns of the representatives of the MoH regarding the level of construction of healthcare facilities. According to them, “Hospitals and medical centers are not required to adhere to a design code that would ensure greater resilience and that could facilitate continuing operations during disaster response and recovery” [10].

Table 10: Risk matrix – The level of risk of unpreparedness of health care facilities in Kosovo to the climate hazards (summary of checklist findings)

Climate hazard type	IS HAZARD OR EXPOSURE PRESENT? Yes/No	Areas of healthcare facilities impacted/AT risk			
		Level of risk on checking with changed conditions (%)			
		Health workforce	Water, sanitation and hygiene and healthcare waste	Energy services	Infrastructure, technologies, products, processes
Heatwave	Yes*	Medium-high	Medium-low	Low-Medium	Low-medium
Floods	Yes*	Medium	medium	Low-Medium	Medium
Drought	Yes*	Medium	medium	Low-Medium	Low-medium

*High possibility of happening in Kosovo.

Summarizing the CC risk matrix in Kosovo’s hospitals, regarding the exposure to heatwaves, there are differences in the answers among the responding cities. Health workforce knowledge and preparedness, and the process of water sanitation and waste have been identified as the main vulnerabilities in the facilities. These two together with the low quality and safety of the infrastructure and technology are the riskiest points in the hospitals all over the country (Tables 4 and 5). Similar to the previous, there are different answers from the hospitals regarding the level of preparedness to cope with possible flood effects (Table 6). According to the answers of the interlocutors, it seems that exposure to floods will be among the main challenges for healthcare facilities especially the process of water, sanitation, and waste management (22.0% high risk) followed by infrastructure, technology, and product process (21.3 %). Peja and Pristina are the hospitals with the highest risk in this area (Tables 6 and 7). In general, the risk of unpreparedness to cope with the drought in the country is medium with the infrastructure, technology, and products process representing the highest risk. Still, the problem of the low knowledge and preparedness of the workforce is problematic (Tables 8 and 9).

Conclusions

The findings of this study can confirm the various types of vulnerabilities and weaknesses. The conducted checklist diagnostic shows that the level of risk (unpreparedness of the system to cope with the hazard) is considered medium equally in almost all assessed facilities (Table 10). In addition to the workforce issue, there is a need for capacity development, preparation of plans, and awareness raising through health education programs in the community to improve the health of the population and their capacity to cope with the risk of heat waves.

Recommendations for the health authorities

Regardless of the nature of the extreme event, hospital disaster preparedness requires a holistic and comprehensive approach that involves strategies and action plans, strengthening the human and technical capacities of healthcare institutions and community participation to ensure safety during emergencies. Preparation of action plans and raising awareness through health education programs in the community to improve the health of the population in the face of extreme climate risks should be the main pillars of the approach. The establishment of an electronic system for health data management is also important, especially in case of a need to evacuate the patients to another facility during climate extremes like floods. All these structural actions primarily need a comprehensive advocacy process and above all strong political and financial support from the governments and relevant stakeholders on central and local levels.

Author Contributions

All authors contributed to the study's conception and design. Data collection and analysis were performed by Lendita Mehmeti Cakuli. All authors were involved in the writing and review of the manuscript. All authors read and approved the final manuscript.

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