



Perspective

Devastating flood emergency in Pakistan- a recent threat to country's health care system

Pakistan, a developing country, has faced numerous climate and weather related calamities owing to its geographical diversity and varied tropical continental climate. It has witnessed a number of repeating droughts, heatwaves, flash floods, riverine, landslides and sea storms or cyclones. With passing years, climate change is likely to become more frequent and intense all over Pakistan. Flooding after monsoon rains lash the country is one of the worst crises any country has to go through and unfortunately Pakistan is one of those countries who are never pre-prepared to combat against such type of devastating situations. In late July 2010, severe monsoon rains commenced, setting up the worst flood to ever strike in Pakistan since 1929. 20 million people in 78 districts were affected by flood killing thousands of people and destroying 2 million homes [1].

Pakistan, yet again, faces another spell of flooding after monsoon rains, causing devastating damage to infrastructure, rendering thousands of people homeless and claiming hundreds of lives daily. Recent downpour and consequential floods have affected 2.3 million people in Pakistan since mid-June with 95,350 homes destroyed and 504,000 livestock killed [2]. At least 903 people have died from severe rains and flooding this summer as country sees its eight cycle of monsoon rains [3]. This torrential flooding has not only provoked serious concerns for socio-economic and demographic status of country but has also doubled the hazards being faced by health and sanitation set up mainly in Southeastern province of Sindh and Southwestern province of Baluchistan.

Pakistan's health care system, being already weakened by Covid-19 pandemic, has now been exposed to plethora of grave and major threats due to ongoing heavy rain and flooding crisis. It is well known that stagnant water, poor sanitary and unhygienic conditions create an ideal environment for pathogens to breed. While Pakistan already faces cholera outbreak with 234 confirmed cases in Karachi, occurring circumstances will add to calamity and accelerate the cholera surge due to inevitable human contact with contaminated water [4]. Not only cholera, but number of other diseases have been sprouting in Pakistan during seasonal rains and subsequent heavy floods. According to a study by Shah et al. conducted from 2011 to 2012, 33% of water samples were contaminated by different Diarrheagenic Escherichia Coli in Southern Khyber Pakhtunkhwa during rainy season and flood runoff [5]. Furthermore, excessive raining and flooding provides breeding ground to Crimean Congo Hemorrhagic Fever, Malaria Falciparum, Measles and Polio, all of which have been witnessed during flooding crisis in 2010 [1]. Other than that, water-borne dengue virus also imperils Pakistan with its harms when country has already gone through hefty rise from 32, 04 cases in 2018 to 45,120 cases in 2019 [6]. Similarly, recent floods and torrential rains put Pakistan on verge of another malaria outbreak, incidence of which took a sharp spike in flood affected districts of Baluchistan in 2009 [7].

Floods, in addition to causing numerous deadly, communicable and infectious diseases, can severely damage functioning of soil, resulting in enfeebled food security all over the country. Not only they can cause water contamination and damage to crops but can also become reason of heavy metal accumulation in food plains rendering the soil impotent to agriculture as reported in the study conducted by Hafeez et al. [8] Stunting, a type of chronic malnutrition, tops the list of non-infectious diseases in wake of compromised food safety aftermath the catastrophe caused by heavy rainfall events. A study concludes that flood negatively impacts mid-class-based children under five leading to malnutrition [9]. Being consistent with the findings of previous study, another study reports that the prevalence of malnutrition (50.7%) was substantially higher in flood affected areas of Khyber Pakhtunkhwa among children under 5 years of age [10].

Flood related adversities also lead to high occurrence of psychiatric manifestation and people become most prone to develop Post-traumatic Stress Disorder (PTSD). Study conducted in 2014 assessed the 2010 flood victims in Pakistan and found out that all the victims met the diagnostic criteria for PTSD and scored above the cut off for psychiatric caseness [11].

This unprecedented rain spell is the cause of the greatest humanitarian crisis in Pakistan's history. It's actually a huge task for the nation to work for the relief and rehabilitation of the inundated people. Most of the people fighting against this disaster belong to very low socio-economic class, therefore, our primary and foremost goal must be to fulfil the basic health and nutritional needs of the affected people. Further, we need enormous rescue operations to overcome such catastrophic condition. The practices that we should focus on are as follows:

- 1 As we have already discussed that floods are followed by an enormous spike in the dengue and malaria cases due to increased breeding opportunities for mosquitoes and many other pathogens, therefore, stagnant water should be treated with disinfectants to prevent the growth of such dangerous mosquitoes and other pathogens.
- 2 Poor sanitary and unhygienic conditions are among the main causes of different health-related issues and crises in the country, which can be overcome by following proper hygienic practices such as using hand sanitizers, organizing clean-up activities, applying antiseptics on cuts and wounds, using clean utensils, mosquito killer sprays and mosquito repellents.
- 3 Vaccination of the flood victims and workers, which includes hepatitis, measles, mumps, tetanus, diphtheria, rabies and typhoid should be checked and commenced if not done before or not up to date.
- 4 Other waterborne diseases in which diphtheria, cholera, and diarrhea are included, can be prevented by providing victims with pure and distilled water.

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- 5 Organizing medical camps for the victims and sufferer should also be the center of our focus to help lessen the burden of havocted health care system.
- 6 In order to spread awareness of infectious and contagious diseases which threaten Pakistan during or after the flooding, we should start awareness campaigns in the affected areas and health related advertisement on different social media platforms.

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Author contribution

Ayesha Saadat proposed the idea. Tasmiyah Siddiqui and Ayesha Saadat collected the data and completed the manuscript. Tasmiyah Siddiqui finalized the manuscript. Aqleema Mohammad Ameen did the proof-reading and submission of article. All authors approved the final version of article.

Conflicts of interest

None.

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