

# Silent Impact of Floods on Child Health in Pakistan

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Pakistan is highly vulnerable to climate change effects despite being a non-contributor to global greenhouse gas emissions<sup>1</sup>. Extreme temperatures, water insecurities, droughts, landslides, and heat waves have not only left devastating impacts on economy but also compromised physical, social and mental well-being of population. During recent frequent episodes of flooding battered more than two thirds of its districts<sup>1</sup>. Moreover, it impacts individuals of all ages, with children being particularly vulnerable due to their weaker immune systems and dependence on caregivers<sup>2</sup>. Pakistan is currently grappling with its most severe flood disaster, which has submerged vast areas, notably in eastern Punjab, followed by Khyber Pakhtunkhwa (KPK), Sindh and Gilgit-Baltistan (GB). Their impact on child health is multifaceted, with immediate public health consequences as well as numerous enduring challenges<sup>2</sup>.

More than 40% of Pakistan's population is under 18 years of age (approximately 112 million), child health is a major concern during such catastrophes. UNICEF reported that an estimated 3.4 million children were affected by the 2022 flood tragedy in Pakistan<sup>3</sup>. The most immediate and evident causes of flood-driven child mortality and morbidity are physical injuries from debris, collapsing structures, drowning, electrocution and snake bites. Furthermore, floods inversely impact child health by increasing the incidence of water-borne diseases such as hepatitis A and E, typhoid, cholera and diarrhea due to widespread water contamination and the breakdown of sewer systems. Stagnant water acts as a breeding ground for mosquitoes, further leads to the spread of vector-borne diseases like malaria and dengue<sup>4</sup>. Skin problems and respiratory issues also emerge from mold growth in persistently damp environments<sup>5</sup>.

In the long term, the interruption of healthcare infrastructure gives rise to additional health risks. Child vaccination coverage declines due to limited access to health facilities. Disrupted antenatal care can adversely affect newborns, and mothers in crowded shelter homes may struggle to breastfeed due to a lack of privacy. Moreover, less availability of food and increased stress in mothers may decrease milk production<sup>6</sup>. This decline further increases an infant's susceptibility to infections.

It is observed that widespread food insecurities during these times also exacerbates malnutrition<sup>7</sup>. It is well documented that disasters leave negative impacts on child height, weight, and cognitive abilities<sup>8,9</sup>.

The physical health, mental health of children also becomes of paramount importance. Floods have a measurable psychological impact, often manifesting as mood swings, anxiety, depression, regressive behaviors and sleep disturbances in affected children<sup>10</sup>. Displacement, homelessness and loss of familiar environments increase the risk of child labor, abuse (sexual, verbal, and physical), post-traumatic stress disorder (PTSD) and substance abuse<sup>11-13</sup>. Studies suggest that counselling, Psychological First Aid (PFA), play and art strategies can be highly beneficial for healing emotional trauma in these children<sup>14</sup>.

These times in country call for action. The government must implement effective interventions in preparedness, mitigation and rehabilitation phases of disaster management<sup>15</sup> with focus on children and families while prioritizing the physical and mental wellness. Children are often overlooked and their long-term health problems remain poorly understood by policymakers. Key measures to improve child survival and outcomes include: the provision of safe drinking water through installed water purification plants to prevent disease outbreaks; the supply of emergency medicines, hygiene kits and mosquito nets to reduce disease transmission; the establishment of temporary healthcare and vaccination centers; the provision of psychological support through counselling, play and art therapy, PFA and telepsychiatry; and the setup of temporary schools to ensure educational continuity.

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