

Who are easily to develop flood-related bacillary dysentery?

Climate change has already brought and will continue to bring about challenges to public health on a global scale. In particular, it is estimated that floods have affected 2.8 billion people and killed 200,000 during the past 30 years, which is considered to be a major extreme climate event.

It is important to study the impact of the severe floods on human health, in order to help minimize negative consequences. So we conducted a study in Zibo City of Shandong Province, in order to find out the relationship between floods and bacillary dysentery. The reason we chose Zibo was that it had experienced one flood from 31 July to 2 August of 2007, which was the worst hit area during the main flood season of the year.

Firstly, we did a descriptive analysis, and found that there were a total of 902 notified bacillary dysentery cases being identified during the study period, most of which were youngsters under 7-year-old. This demonstrated that bacillary dysentery is big threat to children's health, and more attention should be paid to this population group.

Then we used an epidemiological method called "case-crossover design" to investigate the association between flood and bacillary dysentery. It turned out that flood was associated with an increased risk of bacterial dysentery from the 1st day to the 3rd day after the flood, contributing to nearly 2 times increasing in the number of cases on the 2nd day after the event. The results suggested that an impact of flood could increase the risk of the disease immediately, considering the incubation period of the disease (7 days). Accordingly, it is extremely important for public health practitioners to begin the response just after flood to prevent and reduce future risks of *Shigella* infection.

After that, stratified analysis according to age and gender were conducted to find the high-risk population groups who are easily to develop flood-related bacillary dysentery. Gender-specific analysis showed that only males had a higher risk to develop bacillary dysentery from the 1st day to the 5th day after the flood, with almost 3 times more likely to be infected by *Shigella* than normal males on the 2nd day after the extreme event. In comparison, females were not easily to get infection. One possible reason for the phenomenon is that males have more chance to be exposed to polluted water, such as fighting against floods, cleaning the stagnation of water and sewage.

Although age-stratified analysis showed that the flood increased bacillary dysentery morbidity among people of both age stages (i.e. people below 7 years and people above 7 years), youngsters had a slightly larger risk to develop bacillary dysentery after the flood than older people at one shorter lagged day, providing evidence that youngsters may be the vulnerable population to develop flood-related bacillary dysentery. More precisely, youngsters were 2 times more likely to develop bacillary dysentery at 2 days after flood, while older people were 1.8 times more likely to be infected by *Shigella* at 3 days after flood.

So we got conclusion that there is a positive association between flood and the risk of bacillary dysentery. Males and youngsters may be the vulnerable and high-risk populations to develop the flood-related bacillary dysentery. Results from this study will provide recommendations to make available strategies for government to deal with negative health outcomes due to floods.

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[Association between flood and the morbidity of bacillary dysentery in Zibo City, China: a symmetric bidirectional case-crossover study.](#)

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