



The Potential Role of Mass Gatherings in Dengue Fever Outbreaks and its Prevention Measures: A Letter to the Editor

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To Editor,

Dengue fever is a mosquito-borne viral disease that causes flu-like symptoms and can develop into a potentially life-threatening condition. It is transmitted primarily by invasive *Aedes* mosquitoes, namely *Aedes aegypti* and *Aedes albopictus*, and poses a significant threat to public health, especially in tropical and subtropical climate conditions (1).

Dengue fever transmission is influenced by various factors, including environmental conditions as a breeding place for growing mosquitoes, human behavior, and public health measures (2). One of the human behaviors is mass gatherings. Mass gatherings that bring large numbers of people into physical proximity, such as festivals, religious events, and public celebrations, often create ideal conditions for the transmission of this virus. The convergence of large numbers of people can inadvertently facilitate the spread of the disease by increasing the likelihood of mosquito bites in densely populated areas (3). Moreover, during such events, human movements continue to introduce the virus to new geographic areas, potentially leading to localized outbreaks. The presence of stagnant water in event venues, where mosquitoes breed, further exacerbates the risk of transmission. So, it seems there is a correlation between mass gatherings and dengue fever outbreaks (Figure 1). Understanding this relationship is vital for developing effective measures to prevent the spread of dengue and safeguard public health. Public health authorities must recognize the implications of mass gatherings on dengue transmission. Implementing preventive measures, such as community awareness campaigns, mosquito control strategies, and encouraging attendees to take personal

protective actions, can significantly mitigate the risks associated with these events.

Another important strategy is to strengthen surveillance systems and enhance laboratory capacity to promptly detect and confirm dengue cases associated with large gatherings. Early identification of cases can enable timely public health interventions, such as vector control activities, case management, and health education initiatives. Furthermore, leveraging digital technologies and communication channels can improve real-time reporting of suspected cases, disseminate health advisories, and engage participants in preventive actions before, during, and after the event (4). In addition, promoting individual responsibility and behavioral change among attendees is crucial for reducing the risk of dengue transmission during mass gatherings. Education campaigns on mosquito bite prevention, personal protection measures (5), and early recognition of dengue symptoms can empower participants to take proactive steps to safeguard their health and minimize the likelihood of infection. Encouraging participants to seek medical care promptly if they develop symptoms consistent with dengue fever is also essential for timely diagnosis and appropriate management (6).

Finally, it can be concluded that mass gatherings have the potential to contribute to the spread of dengue fever by creating conducive conditions for virus transmission and facilitating its geographic dissemination. Addressing the risk of dengue outbreaks in these settings requires a multifaceted approach that encompasses pre-event planning, surveillance and response capacity building, community engagement, and individual behavioral



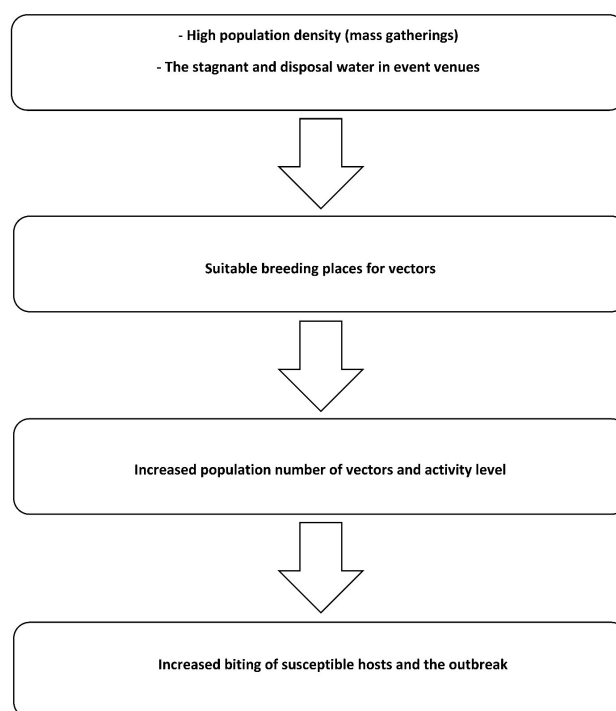


Figure 1. Transmission pathway and risk factors involved in dengue fever outbreaks in mass gatherings

interventions. By implementing targeted strategies tailored to the unique characteristics of large gatherings, public health authorities can reduce the risk of dengue transmission and protect the health of participants and affected communities. Continued research and collaboration are essential for further understanding the dynamics of dengue transmission in the context of mass gatherings and developing evidence-based interventions to mitigate this public health threat.

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