Case Report

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Public health aspects of the world's largest mass gathering: Kumbh Mela 2019 Prayagraj Uttar Pradesh, India

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ABSTRACT

The influx of large numbers of people to mass gathering events may give rise to specific public health risks. Kumbh-Mela is internationally famous religious mass gathering. It creates the substantial challenge of creating a temporary city in which millions of pilgrims/visitors can stay for a defined period of time. The arrangements need to allow this very large number of people to reside with proper medical services, adequate supplies of food, electricity, waste disposal, clean water and transportation etc. Understanding the Kumbh-Mela can highlight the health challenges faced and provide the crucial lessons for the management of mass gatherings.

Keywords: India, Kumbh mela, Mass gathering, Ganga

INTRODUCTION

Mass gatherings (MG) are characterized by the concentration of people at a specific location for a specific purpose over a set period of time and which have the potential to strain the planning and response resources of the community, city or nation hosting the event. These include Spontaneous and organized events like sports, social and cultural functions, and political and religious gatherings.1 The number of attendees may vary from hundreds to the millions. Kumbha Mela is a mass gathering of Hindus along the banks of the Holy River Ganga in India. It is held every third year at one of the four venues by rotation: Haridwar on the Ganges in Uttarakhand, Ujjain on the Shipra in Madhya Pradesh, Nashik on the Godavari in Maharashtra and Prayagraj (old name Allahabad) at the confluence of the Ganges, the Yamuna, and mythical Sarasvati in Uttar Pradesh. This was considered the biggest human gathering on the earth.² The Kumbh Mela 2019 at Prayagraj, India was the largest gathering of humanity in the history of mankind, and posed an exciting challenge to the provision of healthcare services. With the history of stretching centuries before Hajj, Kumbh Mela receive little attraction in academic discourse. In relation to MG tragedies occurring across the world, and even in India for events on a much smaller scale, the Kumbha Mela stands out for its track record on safely and management.

To manage Kumbh Mela 2019, the organizing authorities had set up various facilities for the attendee like temporary roads, toilets, hospitals, and ambulance facilities, fire stations, water and sewerage facilities, etc. There were numerous difficulties, unforeseen conditions along the way. But the event was overall a huge success.

The main objective of the study is to focus on all the public health prospective challenges has been confronted by the

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organizing authority of Kumbh Mela 2019 measures that could be taken to further enhance the effectual public health management in Mass Gatherings.

CASE REPORT

Significance of Kumbh Mela

Mythological significance

The founding myth of the Kumbh Mela points out to the Puranas (compilation of ancient legends). It recounts how Gods and demons fought over the sacred pitcher (Kumbh) of Amrit (nectar of immortality) called the Ratna of Samudra Manthan. It is widely believed that Lord Vishnu whisked the Kumbh out of the grasp of the covetous demons who had tried to claim it. As he took it heavenwards, a few drops of the precious nectar fell on the four sacred sites we know as Haridwar, Ujjain, Nashik, and Prayag. The flight and the following pursuit are said to have lasted twelve divine days which is equivalent to twelve human years and therefore, the Mela is celebrated every twelve years, staggered at each of the four sacred sites in this cycle. The corresponding rivers are believed to have turned into Amrit at the cosmic moment, giving pilgrims the chance to bathe in the essence of purity, auspiciousness, and immortality.³

Kumbh is one of the most sacred pilgrimage sites for Hindus. The term 'Kumbh' comes from the root 'Kumbhak' (the sacred pitcher of the elixir of immortality). There is a mention of 'Kumbh' and the bathing ritual associated with it in the Rigveda. It speaks of the benefits of bathing at Sangam during this period, elimination of negative influences and rejuvenation of mind and soul. Prayers for the 'Kumbh' are also expressed in Atharvaveda and Yajurveda.³

The Kumbh Mela at Prayag is widely considered as the most significant among all the Kumbh festivals held at other locations. It is considered as the source of light and knowledge. It is believed that Prajapati Bramha performed Ashvamedha Yajna at Dashashvamedha Ghat situated at the confluence of the Ganga and Yamuna and created the universe due to which it is the most famous and significant among all other Kumbh festivals.²

Astrological significance

The story of Samudra Manthan, one of the best-known episodes in the Hindu mythology, narrated in the Bhagvad Purana states that the sacred alignments of celestial bodies directly relate to the Kumbh festival. It took twelve divine days to carry the Amrit to the heavens. As one divine day of Gods is equivalent to one year of the humans, the journey to the heavens symbolizes twelve years in human terms. That is why every twelfth year when Jupiter enters the Aries constellation on the day of the new moon in the month of Magh, the Kumbh festival is organized. Mythological studies suggest that the Kumbh festival and

the Ganga are related to each other. The Ganga flows in Prayagraj but Godavari of Nasik is also called the Ganga or the Gomti Ganga. Similarly, the Shipra (in Ujjain) is recognized as the north branch, the Ganga of Kashi. From that place onwards, Shipra becomes the east branch where it assimilates with the Ganga.

Social significance

Organising any event entails a massive marketing campaign, promotional activities, and sending invitations to guests. The Kumbh Mela is perhaps the only event in the world where no invitation is required yet millions of pilgrims gather to celebrate the holy event.

Apart from its primary bathing rituals, the social aspect of the festival also revolves around the various Yajnas, the chanting of Vedic Mantras, holy elucidations, traditional dances, devotional songs, programs based on mythical stories, and prayers. Religious assemblies are held where doctrines are debated, standardized and conducted by renowned saints and sages. A prominent part of the festival is the act of donations to the poor and helpless, to the saints, and to cows. Donations range from basic food and clothing to even precious metals.

The welfare of all beings, sharing of noble thoughts and maintaining good relationships with all the beings across the world is the core message prevalent during the Kumbh festival. Kumbh has been spiritually uniting the people of India and across the world since time immemorial and will continue doing so for years to come.

Planning prospective of Kumbh Mela 2019

Kumbh Mela held at Prayagraj was started on 15th January and ended on 4th March 2019. Kumbh Mela was a massive event attracting millions of human populations from all over the world. Every time there are new challenges. It was indeed a tough job for the planners to assess the data based on the previous year's Kumbh Mela and extrapolate the current estimated people travelling down by considering the factors such as population growth, infrastructure, road connectivity etc.²

For effective management of any event, proper planning at macro levels as well as micro levels is important. This becomes even more critical when the activities of the event are managed by more than one department. For organizing an event of the magnitude of Kumbh Mela and ensuring synergy of purpose among multiple departments, governments and agencies responsible for creation of infrastructure and delivery of service to pilgrims/visitors.

The Government of Uttar Pradesh had undertaken multiple measures for ensuring the efficient running of the Kumbh Mela. Unprecedented sustainable construction work had been done. Construction of flyovers, railway under bridges, road widening in the city and beautification of major intersections are few highlights of the massive

construction and upgradation tasks that were undertaken to the made Kumbh 2019 a grand success.

All departments of the Government carried out development works. These include key initiatives of upgradation of the Railway Stations and the construction of the new Prayagraj Civil Airport to cater the incoming pilgrims and visitors from all over the world. Further, National Highways Authority of India had taken over responsibilities of rebuilding and upgrading major Highways connecting Prayagraj to surrounding cities.

Pilgrims also had the convenience of point-to-point ferry rides to travel to the bathing Ghats as the Inland Waterways Authority of India had built five Jetties. Roads had been constructed and widened by the Public Works Department (PWD). Parking spots were constructed at short distances from the Sangam. More than 84 parking places had been identified, 18 of which were developed as satellite towns, replete with public conveniences and vending zones, to enhance the experience of Pilgrims. More than 524 shuttle buses and many CNG auto rickshaws were deployed for carrying pilgrims. About 54 holding areas were developed which had been used for waiting and resting of visitors at different areas in the city. Traffic management at Kumbh 2019 was planned to ensure coordination of traffic movement on multiple channels which was integrated with google maps as well before the Mela. In order to facilitate visitors, new deployment of tele-communication services, banking services and water ATMs had been carried out for the entire mela area.

Modern technology equipped Integrated Command and Control Center for managing the security of visitors were set up. This was also include setting up 1,000 CCTV cameras in the entire mela area for better monitoring and mitigations of risks that can lead to potential disasters.

Emergency services

To ensure safety of pilgrim's measures had been taken up to fight against emergencies.

Disaster management

Health emergency

Disaster Management Control Cell had been established in Central hospital headed by Nodal Officer. The Quick Medical Response Teams of five members each, had been deployed, two at each circle office and two at each circle hospitals. Also, Ambulances with wireless sets were available 24x7 in the Mela Area to support these teams. The state health department had prepared for sanitation, vector-borne diseases, solid waste management and disaster management along with general health services. A hundred bed Central hospital had been established in Mela area with facilities of investigation services along with, 24-hour availability of specialist doctors. Apart from that, other circle hospitals with twenty beds each had been set

up to provide all health-related facilities. Two 20-bedded Infectious disease hospital in had also been established. Also, first-aid posts inside Mela area and out-health posts outside the mela area had been established to provide service to patients. Apart from the above, a vector control unit had been formed to counter infectious diseases.

Fire-Hazard

To fight the disaster related to fire hazard, remedial measures had been taken by the authority that includes utility of modern and innovative fire-fighting tools. Standard operating procedure had been designed for better efficiency of mitigation strategies.

Epidemic

All super-speciality departments provide specialised treatment to serious patients. Trauma centre to deal with crisis in 40-beded trauma care facility. One dedicated 30 bedded special ward and along with 5 beds in each super speciality at District Hospital & other associated hospitals for Kumbh Mela pilgrims.

Flood

To fight against flood situations in the Kumbh Mela area, standard operating procedures had been designed and communicated across all the departments. Flood response system was prepared with mitigation equipment's such as life jackets, jetty, sonar system, boats etc.

Stampede

Disaster management facilities with dedicated team of doctors and paramedical staffs in case of burn injuries, drowning, stampede etc. with specialised kits. Every Police officer to be informed of traffic plan (including diversions and holdup areas) for prevention of diverting crowd in the wrong direction. Area in charge and inspectors to take stock of barricading arrangements every two hours every day to ensure movement of crowds in defined directions. Round the clock, CCTV monitoring of identified high-risk areas for diversion of crowd with appropriate utilisation of public announcement system. Stock emergency equipment and supplies at all high-risk areas (first aid-kits, barriers, torches etc.)

Sanitation

There was a special emphasis on cleanliness this time at the Kumbh Mela. For maintaining cleanliness and hygiene, and to host an open-defecation-free Kumbh, People were compelled to defecate in the open due to the absence of toilets in the previous years but this time 120,000 eco-friendly toilets had been built toilets across the Mela premises and double the number of sweepers will maintain cleanliness. The last Kumbh Mela had only seen 34,000 toilets. These complemented by modern techniques for septage management. Solid waste was to be collected in

20,000 dustbins that are to be deployed and transported out of the Mela area by tippers and compactors deployed accordingly. More than 20,000 dustbins with liner bags, more than 15,000 sanitation workers, 40 Compactors and 120 Tippers for disposal of waste and more than 2,000 Ganga Praharis/Swacchagrahis had been engaged as foot soldiers.²

ICT-based system (Information and Communications Technology) deployed to monitor and ensure timely cleaning of toilets. Proper onsite sludge management, cesspool operations and odour management were being deployed.³

Drainage/ Sewerage

The Ponding sites and Bio-remedial treatment sites built in and around the Mela area. The Permanent sewer lines built in a few sectors to ensure efficient sewage transportation from Mela area to treatment plants.150 Km High-density polyethylene (HDPE) Pipe Line. 850 Km Drains. 100 Trolley Mounted Diesel Pumps.

Drinking water

There was 24×7 drinking water supply ensured during Mela period to all camps. The continuous Water Testing to check on quality. About 200 Water ATMs, 5000 Stand Posts, 150 Hand Pumps installed in the Mela area and 150 water tankers used.

Campaigns

Netra Kumbh-Ahead of Kumbh 2019, Netra Kumbh was organised from 12th January to 4th March 2019. Through this initiative visitors and pilgrims came to attended this biggest gathering of spirituality and humanity in Prayagraj was provided free eye check-up and screening. Ophthalmologists had been appointed who was screen more than two lakh people and in fifty days of Netra Kumbh. In addition to this, more than one lakh free spectacles were distributed, and more than 21 thousands of people treated in a General OPD. (Source-Netra Kumbha organisers)

Swachh Kumbh Champ

The Prayagraj Mela Pradhikaran has launched the Swachh Kumbh Champ Campaign on the Global Handwashing Day, October 15th, 2018. The Campaign aims to mobilise people to come out and get directly involved with cleanliness efforts in their day-to-day life and in their immediate surrounding.

Paint my city

More than twenty Lakh sq. ft. of city and Mela area infrastructure had been painted by various artists, drawing funds from various Government Projects like Namami-Gange, Smart City, Swachha Bharat Mission etc.

DISCUSSION

The Public health challenges at mass gatherings events

The challenge faced in planning healthcare for an anticipated influx of millions of pilgrims, to a region of India with relatively underdeveloped permanent healthcare infrastructure, was to ensure optimal resource deployment with assurance of a minimum desired level of healthcare which was both accessible and affordable. A high level of commitment as evinced by the political leadership, was translated into a meticulously conceived and professionally executed medical response. The planning approach adopted was multidisciplinary and also involved non-governmental organizations of the region.⁴

The Mass gathering events have a potential to place a severe strain on the local health care system, with a mixture of high crowd density, restricted points of access, limited crowd control and lack of sufficient on-site medical care and emergency response which can increase the risk of disaster. Many challenges are faced by mass gathering event organizers, medical resource planners, and emergency services, including local hospital emergency departments in order to provide a safe event. The analysis of previous crowd disasters indicates a need for early detailed planning of the crowd policies, evacuation procedures and involvement of emergency services which are necessary to promote and provide a successful event.

This review highlights several key considerations that could impact on health resources include: Planning, preparedness, response and mitigation: Preplanning on preparedness, response and mitigations for mass gathering events is the key and should include health management and major incident planning. Safety and security: Adequate crowd security and emergency medical services need to be provided at a mass gathering taking account of crowd size and factors such as event type and external environmental conditions. Training and psychosocial consideration: Emergency medical services with adequate training and experience, in the management of multiple medical casualties need to be available. Pre-planning with local hospitals will aid the emergency response.⁴

Mass gatherings can have good and bad long-term effects on the health sectors of host countries. They offer an opportunity to improve health service delivery, enhance health promotion and strengthen public health systems, but they can also overwhelm health services.⁶

CONCLUSION

Kumbh mela present a unique opportunity to generate an evidence base for the development of solution and recommendations for the mass gathering management. It was very essential to the establish excellent coordination and communication system between different organizers. A proper understanding, planning, timely risk assessment

and proper resource utilization can make any event a successful one across the world.

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