



Short Communication

Emergency preparedness for mass gatherings: Lessons of “12.31” stampede in Shanghai Bund

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ABSTRACT

According to WHO, one of these mass gatherings with critical risk is stampedes. Shanghai “12.31” stampede was a preventable tragedy that the government and event planner hold responsibility for. At the same time, it can be a legacy for improvement in the future. The government should draw experience on the implementation of an emergency preparedness system, in order to improve the rapid emergency response during mass gatherings in the future.

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Introduction

According to WHO, a mass gathering of people is usually defined as more than a specified number of persons at a specific location for a specific purpose (a social function, large public event or sports competition) for a defined period of time.¹ One of these mass gatherings with critical risk is stampedes.

The “12.31” stampede was known mostly for its particular time period (New Year Eve), the large casualties among young students and various rumors after it.

What happened?

Starting from 20:00, December 31st, 2014, around 120,000 citizens and tourists made their way towards the Bund. By 23:00, the number reached 310,000. Around 23:35, a stampede happened between Chenyi Square and the platform of the Bund, one of the most well-known tourist attractions in Shanghai where the New Year's Eve light show is usually held. The stampede had led to 36 deaths (Table 1) and 49 injuries,² most of whom were young students and tourists from other cities.

Prior to the stampede, people were coming from different directions and converged at the staircase of Chenyi Square. In the large crowd, those at the top stairs pushed each other amidst the congestion, causing some people to tumble, immediately leading to a stampede.

Right after the stampede, policemen at the scene and surrounding bystanders made efforts to rescue the people who had fallen. However, they did not succeed due to the density of people.

Shanghai Medical Emergency Center was informed at 23:41 and 19 ambulances arrived by 23:49. The victims were sent to the nearest hospitals and escorted to operation rooms through the Green Channels (channel for ease access, usually for critic illness).

After the event, general public was eager to obtain information. The media responded more quickly with news stories than the government, as often happened in these emergency events. However, due to the complicated situation, lack of verification and quick dissemination, rumors spread rapidly, the largest being that the stampede was caused by a distribution of cash coupons.

Why it happened?

High density of people

Starting from 20:00, around 120,000 citizens and tourists made their way towards the Bund. By 23:00, the crowd number reached 310,000,^{3–6} and in this density of crowd, people usually fail to respond rapidly even if they stumble.

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Table 1
Gender and age distribution of the casualties.

Age (years)	Male	Female	Total	Percentage (%)
10–14	1	0	1	2.78
15–19	3	3	6	16.66
20–24	2	16	18	50.00
25–29	3	6	9	25.00
>30	2	0	2	5.66
Total	11	25	36	100

Cited from Ref. 2.

Flow direction

At the staircase, a large number of attendees were still moving towards the platform while another crowd was walking down the stairs, leading to the “arch phenomenon”,^{5,6} an unstable situation with high risk of a stampede.

Lack of self-protection awareness

In planning a mass gathering, promotion of emergency actions and availability of public information should be provided to minimize the public health risks. Not only there should be clear leadership and governance arrangements, but also appropriate funding.⁷ There were hardly any promotions prior to or during the event that targeted at self-protection and emergency procedures in a high density crowd. In addition, an early warning system was not put in place. Thus, the general public was unaware of the risks and hazards in their environment.

Environmental factors

Management of environmental threats for mass gatherings requires clear, effective and early intersectoral engagement and collaboration.⁷ Due to the convenience of public transportation and the attraction of the Bund, Chenyi Square was a public area with the highest crowd density, making the staircase between the two sites a dangerous place. There were 17 steps, parted by a platform of 14 m², so people in the crowd could be easily tripped.

Risk assessment

Using risk assessment and risk management to guide preparedness planning can facilitate a successful mass gathering.⁷ While planning, the organizer of New Year’s Eve light show relocated the event from the Bund to Waitan yuan and undertook risk assessment for the new location. However, the location change was not notified to general public until December 30. Due to the lack of communication between the organizer and the attendees, most of the tourists and citizens did not know this location change and many showed up at the Bund. The core of the risk assessment is to ask what could happen and how likely it would happen. When changing the location, the organizer should have considered the shortage of time to convey the announcement and risk of incomplete communication.

Surveillance and communications

Surveillance during the event can facilitate early warning of injuries. Enhanced surveillance is needed in order to rapidly identify public health concerns during the mass gathering, to communicate the information about them, and to respond to them.¹ During the event, there were approximately 350 policemen, in which only 7 (later 13) were placed at Chenyi Square, because of the change of event venue and miscalculation of the public’s actions.^{3,4} The lack

of manpower and overwhelming crowd of people made it difficult to even reach the spot where the incident happened, not to mention, offer assistance to those in need. There was no enough surveillance to react appropriately. What’s more, Huangpu Public Security Bureau had not enforced any effective traffic control even though they were instructed.

Communication is the rapid and coordinated dissemination of information related to public health issues. Nearly all reports of actual events or exercises of events note shortcomings in communication, which further emphasizes its importance. After 20:00 on the 31 December, the number of the crowd was increasing rapidly. However, Huangpu Public Security Bureau failed to undertake surveillance on the crowd number and inform the duty office, which caused insufficient police presence during the event. In addition, Huangpu Public Security Bureau failed to adopt measures in time, nor did they issue warnings to Huangpu District Government to react.

What can we do in the future?

Lessons

After the stampede tragedy on December 31, many public events, not only in Shanghai but also in other major cities, were canceled. However, it is not beneficial to forbid all the mass gatherings because of the spontaneity and uncontrollability. On the contrary, the government should evaluate the event, summarize the mistakes and learn the lessons so as to provide guidance to future mass gatherings.

Comprehensive risk assessment

As we mentioned above, risk assessment is essential to the planning of mass gathering. During the 2010 Expo, a series of risk assessments were performed in order to identify and prioritize potential disaster hazards, and assist with the prioritization of preparedness activities. The approach was based on the AS/NZ 4360:2004 Standard for Risk Assessment, and was modified according to a methodology provided by the US Centers for Disease Control.⁸ It demonstrated that the government is capable of comprehensive risk assessment for an event as large-scale and international as the Expo, and should respond accordingly for other mass gatherings.

Clear responsibility of stakeholders

One of the recognized complexities in mass gatherings is different players involved. Those stakeholders may not understand the risks, roles and responsibilities associated with the mass gatherings or the need for preparedness and effective response to any incidents. The importance of and principles in stakeholder engagement for mass gatherings have been identified and recognized for over 10 years and remain appropriate today.⁷ Different stakeholders should establish a communication system which allows the information collected before, during and after the event to be evaluated and disseminated rapidly.

Surveillance and early warning system

Shanghai government should establish specific departments in charge of surveillance during mass gatherings. Different departments should, like stakeholders, set up a communication system which allows the government to respond more rapidly during big events. The department of information services is needed to

inform the general public of advisory warnings, special announcements and regular reports through different channels of media.

It is also essential to follow and implement the national 4-level early warning system, which informs the public about the possible emergencies, the effects and actions to take.⁹

Sustainability

The engagement of the communities and sustainable development of a program are ever-lasting difficulties in mass gatherings and emergency preparedness. Regarding the December 31st stampede, first-aid knowledge and basic life support training would have been helpful to reduce the causality. Therefore, first-aid organizations should be funded. At the national level, legislation requiring on-site mutual aid is essential to encourage the general public to perform basic life support.¹⁰

Meanwhile, emergency medical services are responsible for maintaining equipment and providing easy access when required in order to perform rapid rescue.

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