

Panic was not the cause of the Love Parade disaster in Germany: study

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At mass events people come close to others - if they get too close all movements are transmitted through the crowd which can lead to a domino effect. Credit: PDU / Fotolia

The ETH socio-physicist Dirk Helbing has examined why the Love Parade in Duisburg, two years ago, ended in disaster. The conclusion of his study: Many factors contributed to the disaster, but according to his interpretation of the tragedy, mass panic was not the cause, which contradicts a widespread view.

It should have been a colorful and happy dance festival in Duisburg. Instead, the 24th of July 2010 ended tragically. At the access points to the festival area – which provided space for 250,000 visitors at a time only – and on the ramp leading to the area, the situation became overcrowded. 21 [people](#) died, and over 500 were injured. Dirk Helbing, a

professor of sociology at ETH Zurich, has investigated the causes of the disaster. He did this independently of the legal investigation, which is still ongoing. Helbing concludes that the [tragedy](#), contrary to widespread assumptions, was not due to a mass panic.

Helbing evaluated freely accessible data, especially YouTube videos published by eyewitnesses. He ordered the videos in chronological order, thus gaining a detailed picture of the sequence of events. “In the videos, we see that the cause of the disaster was not a ‘crowd gone wild’,” says Helbing. The behavior of most visitors was rather controlled than driven by panic. Most people acted reasonably, when they tried to evacuate themselves from the crowded area, but they had no chance against the “natural laws” of crowds.

Movements are transferred

The main cause of the disaster was simply the great density of visitors at the entrance to the festival area. If more and more people head to one place, they come closer to others and, at some point, so close that their bodies touch each other. All movements - not only intentional pushing, but also unintentional movements - are then transmitted through the crowd. If someone stumbles, this can lead to a domino effect, where many people fall on top of others. Those ending up below a pile of people are often unable to get enough air.

The scientist speaks of ‘crowd turbulence’ or ‘crowd quake.’ “In the videos of the Love Parade, you can see that this affected the whole lower area of the entrance ramp to the festival site,” he says. Many visitors must have been afraid for their lives. However, only a few people showed reckless behavior and only in the last phase of the event, when the situation was completely desperate and it was clear that people died. “It was hell, but panic was not the cause of the disaster,” says Helbing.

Mass panic is the exception

Thus, he comes to a different interpretation than the media had often suggested. “The common view of such disasters is that the mass is panicking for some reason, which creates a crowd stampede into some direction and thereby crushes people,” explains Helbing. This view of visitors getting out of control and storming the festival grounds also shines through some official reports. However, the analysis of the event shows that these activities of people were more an evacuation attempt in an already dangerous situation. Had the visitors not looked for ways out of the dense crowd, the tragedy might have occurred much earlier.

Cases of mass panic are very rare, says Helbing. Only a few are known in the scientific literature, such as a stampede in Baghdad in 2005. In this case, a procession of pilgrims got out of control when a rumor spread about an imminent suicide bomb attack. According to Helbing, the cause of most other crowd [disasters](#) lies more in physics than in psychology.

Information is important

"The problem with the concept of ‘mass panic’ is that it blames the crowd for the tragedy. This makes it difficult to draw the right conclusions from the events, i.e. to learn the lessons how to make future mass events safer, says Helbing. Moreover, the risk of triggering panic reactions is often given as reason for not informing the [crowd](#) about threats. However, this is the wrong way to go, says the sociologist. Because in a tense situation information and communication play key roles in preventing a further escalation of the situation.

According to Helbing's study, several factors contributed to the disaster in Duisburg. Organizational issues caused a local crowding. The

measures to deal with the resulting situation were not effective. Last but not least, communication problems contributed to delays in the evacuation of people.

More information: Helbing D, Mukerji P: Crowd Disasters as Systemic Failures: Analysis of the Love Parade Disaster, [EPJ Data Science](#), 2012; 1: 7. doi:10.1140/epjds7

[Videos recorded by eyewitnesses, chronologically ordered and geo-located](#)

Provided by ETH Zurich

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