

Disasters Surpassed Every Previous Years in Cruelty- A Narrative Review

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ABSTRACT

Disasters do not only affect health and well-being of people; frequently, significant numbers of people are displaced, killed, wounded, or at increased risk for epidemics. It is also normal to suffer considerable economic damage. With the second-highest population, increased urbanization, and increased risk of extreme events, India is facing disasters year after year in a vulnerable situation. Combined with poor implementation of planning, relief and rehabilitation measures, and the unplanned and under-standard infrastructure increase the human, physical, and economic losses sustained during and after a catastrophe. It is high time we wake up to reality and enforce strict measures on all fronts to reduce losses. Care should be taken to ensure that even the weakest parts will recover rapidly from disasters. Statistics gathered since 1888 shows a rise in the number of people affected by disasters. Newly discovered coronavirus is a causative agent for coronavirus infectious disease (COVID-19) that arose in December 2019.

Key words: Disasters, Cruelty, Coronavirus, Dentist

INTRODUCTION

Disaster management is stated as “any occurrence that causes damage, ecological disruption, loss of human life, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area.” In addition, the world is becoming more and more high tech, with all the attendant risk for human and non-human failures these developments bring.^[1,2]

DISASTERS IN 2019-2020 WORLDS

- Australia Bushfire (2019–2020) – Also known as the Black Summer, it started in June 2019 with some significant uncontrolled fires.^[3] The fires burned an estimated 18.6 million hectares as of March 9, 2020,

destroyed more than 5900 buildings (including 2779 homes), and killed at least 34 people.^[4]

- Taal Volcano eruption (2020) – On January 12, 2020, the eruption of the Taal Volcano in Batangas, the Philippines, was a phreatomagmatic eruption from its main crater that ignited ashes across Calabarzon surrounding area of the city.^[5]
- Turkey Earthquake (January 26, 2020) – At least 36 people died, and more than 1607 were hospitalized in eastern Turkey following a 6.7 magnitude earthquake that rattled the area.^[6]
- Huge fuel spill inside Arctic Circle (Moscow, June 4, 2020) – Vladimir Putin has ordered a state of emergency after 20,000 tonnes of diesel fuel spilled into a river inside the Arctic Circle. The plant is operated in the area have made the city one of the most heavily polluted places on Earth.^[7]
- New Zealand earthquake (June 27, 2020) – Magnitude 4.9 earthquake 24 km from Taupo, New Zealand, June 27, 2:11 am.^[8]

DISASTER IN INDIA

- Moradabad Hail (1888) – The 1888 Moradabad Hail was a severe hailstorm that occurred on April 30,

Access this article online



www.ijss-sn.com

Month of Submission : 09-2020
Month of Peer Review : 09-2020
Month of Acceptance : 10-2020
Month of Publishing : 11-2020

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1888, in Moradabad. Hailstones as big as “goose eggs, oranges and cricket balls,” 246 people, 1600 cattle and sheep were killed by this hailstorm.^[9]

- Gangaram building collapse (September 12, 1983) – In Bengaluru, India, a seven-story building belonging to N Gangaram collapsed resulting in 123 deaths and over 120 casualties. This building collapse is regarded as one of Bangalore’s worst tragedies.^[10]
- Bhopal disaster (December 2–3, 1984) – Bhopal Gas Tragedy in India on December 3, 1984, in which tons of methyl isocyanate were released into the air by a leakage in Union Carbide Pesticide Plant storage tank. Approximately 2 million people have been exposed to gas leaving some 3000 dead. People continue to suffer from the adverse effects of the gas.^[11,12]
- New Kenda disaster (1994) – The tragedy of the New Kenda coal mine at Bihar on January 25, 1994, killed 55 people. Owned by Eastern Coalfields Ltd., the miners long waited for help but ended up with painful death as the coal mine turned into a carbon monoxide filled gas chamber. Meanwhile, the large chunks of coal also evolved and blocked the escape.^[13]
- Kota Atomic Power Station leak (February 2, 1995) – The Rajasthan Nuclear Power Station spills radioactive helium and heavy water into the Rana Pratap Sagar River, causing a 2-year closure of 280 dollars in 2006 for repairs.^[14,15]
- Amarnath Yatra tragedy (1996) – Amarnath Yatra tragedy refers to the deaths of more than 250 pilgrims due to bad weather in the Indian state of Jammu and Kashmir. Nearly to 242 yatrīs died of exhaustion, exposure, freezing, etc. More than 263 dead bodies were found in and around the temple surroundings.^[16,17]
- Uphaar Cinema fire (June 13, 1997, Delhi) – 59 people were trapped inside and died of asphyxiation, while in the resulting stampede, 103 were seriously injured.^[18,19]
- Gujarat earthquake (2001) – In January 26, 2001, it was also known as the Bhuj earthquake. On the moment magnitude scale, the intraplate earthquake reached 7.7. The earthquake killed some 13,805 people and injured another 167,000.^[20,21]
- Kadalundi train derailment (June 22, 2001) – 57 were eventually reported as killed or missing and 300 were injured.^[22]
- Jammu and Kashmir legislative assembly car bombing (October 1, 2001) – The attack killed 38 people and three Fidayeen.^[23-25]
- Indian Parliament attack (December 13, 2001) – The attack resulted in the deaths of six Delhi Police officers, two Parliament Security Service officers and a gardener, in total nine.^[26,27]
- Indian Ocean earthquake and tsunami (December 26, 2004) – Also known as the Boxing Day Tsunami and the Sumatra-Andaman earthquake.^[28,29] It was an earthquake on an undersea megathrust. A series of massive tsunami waves grew up to 30 m (100 ft.) high. An estimated 2.27.898 people were killed in 14 countries by the tsunamis, making it one of the deadliest natural disasters in history.
- Mumbai attacks (November 26–29, 2008) – At least 174 people died and more than 300 were injured, including 9 attackers.^[30,31]
- Jaipur fire (October 29, 2009) – The fire at the Jaipur oil depot erupted killing 12 people and injuring more than 300. The blaze continued to rage out of control for more than a week after it began and half a million people were evacuated from the region during the period.^[32-34]
- Eastern Indian storm (April 13, 2010) – A severe storm hit parts of Bangladesh and eastern India^[35] around 11 pm local time. More than 140 deaths have been reported as of April 16. At least 91 people were killed in Bihar,^[36] 44 in West Bengal, and 4 in Assam, Indian state.
- Lalita Park building collapse (November 15, 2010, New Delhi) – The building has an estimated 200 people, mostly poor migrant families.^[37]
- Pune bombings (2012) – The 2012 Pune bombings were a series of four coordinated low-intensity bombing attacks across India’s ninth-largest metropolis, Pune, on August 1. The only one who got hurt was a local tailor. A total of 8 suspected Indian Mujahideen (IM) terrorist operatives were arrested on December 27, 2012.^[38]
- Indian cold wave (2012) – In the 2012 winter months, Indian cold wave killed at least 92 people all over North and East India.^[39,40] The majority of the dead were homeless and elderly, living in the Uttar Pradesh state. This cold snap has also affected other northern and eastern states including Rajasthan, Punjab, Haryana, New Delhi, Jammu and Kashmir, Himachal Pradesh, Madhya Pradesh, Bihar, and Tripura. New Delhi was also captured in cold weather, with the temperature dropping to 7°C on Christmas Day and 1°C after New Year.^[41]
- Kumbh Mela stampede (February 10, 2013, Allahabad) – 42 people killed and at least 45 were injured.^[42]
- Mumbai building collapse (September 27, 2013) – At least 61 people died in the tragedy, and 32 others were wounded.^[43]
- North Indian floods (June 2013) – Heavy rain on the North Indian states, primarily Uttarakhand and nearby states, caused severe floods and landslides because of cloudburst. Over 5700 people have been presumed dead.^[44]
- Gas Authority of India Limited (GAIL) pipeline explosion (June 27, 2014) – Approximately 18 people were reportedly killed in the accident and more than 40 injured.^[45]

- Gujarat flood (June 2015) – In June 2015, heavy rain resulted in massive flooding in Gujarat area of Saurashtra resulting in more than 72 deaths. Gir Forest National Park and surrounding area have also been impacted by the wildlife.^[46]
- South Indian floods (2015) – Heavy rain in November–December 2015 led to flooding of Adyar, Cooum Rivers in Chennai, Tamil Nadu, leading to financial loss and human lives. More than 500 people were killed and over 1.8 million (18 lakh) people were displaced. With estimates of damages and losses ranging from nearly ₹ 200 billion (US\$3 billion) to over ₹ 1 trillion (US\$14 billion).^[47]
- Siachen Glacier avalanche (2016) – An avalanche struck an Indian military base in the North Siachen Glacier area on February 3, 2016, trapping 10 soldiers under deep snow.^[48]
- Puttingal temple fire (April 10, 2016) – During the firework festivities an explosion and fire went awry. As a result, 111 people were killed and more than 350 injured some of them along with severe burns.^[49]
- Uttarakhand forest fires (2016) – Such fires raged unchecked, settled mainly in pine forests on the slopes of the sub-Himalayan region, and spread to oak and board leaf forests producing heavy clouds of smoke that turned the normally blue skies into grey; the smog also affected the tourism of the state.^[48]
- Puttingal Devi temple Kollam Kerala (2016) – A stampedes in Puttingal Devi temple Kollam Kerala on April 10, 2016, an at least 111 were killed and 383 were injured.^[50]
- Assam floods (2016) – Heavy rains in July–August resulted in flooding affecting 1.8 million people and flooding of about 200 wild animals in the Kaziranga National Park.^[51]
- Uri attack (September 18, 2016) – At around 5:30 a.m. on September 18, 2016, they were lobbed 17 grenades in 3 minutes. In the course of the attack, 17 army personnel were killed with tents caught fire as a rear administrative base camp. Further, 19–30 soldiers were reportedly wounded.^[52,53]
- Ennore oil spill (January 28, 2017, near Chennai, Tamil Nadu) – When an empty outbound tanker BW Maple collided with a Dawn Kanchipuram oil tanker charged inbound.^[54]
- Gujarat flood (2017) – Following heavy rain in July 2017, the Indian state of Gujarat experienced extreme flooding causing more than 224 deaths.^[55]
- Nepal and India power plant explosion (November 1, 2017) – The plant is run by National Thermal Power Corporation (NTPC) Limited, in Unchahar, Uttar Pradesh, India, which is owned by government. There was an explosion in the boiler that killed 32 people who may have washed ash from the interior of the boiler.^[56]
- Kerala Flood (2018) – Following high rainfall in late July 2018 and heavy Monsoon rainfall since August 8, 2018, the Indian state of Kerala experienced extreme flooding resulting in more than 483 deaths and 140 are missing.^[57]
- Kolkata Bridge collapse (September 4, 2018) – The consequence was 3 people died and at least 25 others are injured.^[58,59]
- Indian dust storms (2018) – From May 2–3, 2018, storms of high-velocity dust swept through parts of North India, killing more than 125 people and injuring more than 200. Forty-three died in Uttar Pradesh, in the town of Agra and about 30 died elsewhere in the state. About 35 people died in neighboring Rajasthan.^[60]
- Cyclone Fani (May 2, 2019) – Fani has been named an extremely strong cyclonic storm that this month struck the Indian state of Odisha. It left behind a trail of destruction killing more than 40 people, eradicating trees and communication system, crippling the economy, and normal life of the country. Fani quickly developed into an extremely severe cyclonic storm and as a high end, extremely severe cyclonic storm, reached its peak strength on May 2.^[61]
- Kullu bus accident (June 20, 2019) – At least 44 people died in the crash, and 34 others were wounded.^[62,63]
- South Asia floods (2019) – Monsoonal downpours triggered severe flooding and landslides in South Asia by mid-July 2019. At least 89 people died in Bangladesh, China, India, and Nepal as of July 14; Nepal is the hardest hit, with at least 55 deaths.^[64]
- Vadodara flood (2019) – Extreme flooding affected the town of Vadodara and its administrative district in the Indian state of Gujarat due to heavy rain in July–August 2019. Almost 50 cm of rain fell on Vadodara in 12 hours on July 31, 2019, with 424 mm reported in one 6 hour period.^[65-67]
- Maharashtra (September 2019) – In Maharashtra, the highest 382 people died, followed by 227 deaths in West Bengal in rains, floods, and landslides that hit as many as 357 districts in the country.^[68]
- Uttar Pradesh and Bihar (October 2019) – In the 4 days leading up to October 1, 2019, large-scale flooding has killed 111 people in Uttar Pradesh and 28 in Bihar.^[69]
- Vattapara accident zone Kerala, India (2019) – Over a 4-year period, there were 265 accidents, 151 injuries, and 21 deaths.^[70]
- Coronavirus 2019 (COVID-19)^[71] – Coronavirus disease is an infectious disease caused by coronavirus 2 (SARS-CoV-2), a severe acute respiratory syndrome. It was first detected in Wuhan, China, in December 2019 and has since spread around the globe leading to

a continuing pandemic. Common symptoms include fever, cough, tiredness, shortness of breath, and taste and odor loss. While most patients have mild symptoms, some progress has been made with acute respiratory distress syndrome (ARDS), multiorgan failure, septic shock, and blood clotting. Usually, the time from exposure to onset of symptoms is around 5 days but may vary between 2 and 14 days.

Diagnostic test: rRT-PCR testing, CT scan

- Pakistan-administered Kashmir avalanches (January 14, 2020) – 76 people died in weather-related incidents in Pakistan-administered Kashmir.^[72]
- Vizag Gas Leak (May 7, 2020) – The Visakhapatnam gas leak, also known as the Vizag gas leak, was an industrial accident at the LG Polymers chemical plant in the village of R R Venkatapuram, Andhra Pradesh, India. The resulting vapor cloud distributed over approximately 3 km radius, impacting the surrounding areas and villages. At 5 pm; May 8, the death toll was 13, and after being exposed to the gas, more than 1000 people became sick.^[73]
- Aurangabad railway accident (May 8, 2020) – On the morning, an empty goods train ran over and killed 16 migrant workers sleeping on or by the tracks near Aurangabad, Maharashtra, India. One additional worker sleeping nearby was injured.^[74]
- Cyclone Amphan (May 21, 2020) – Coastal areas in Odisha as well as Kolkata, Hooghly, Howrah, West Bengal, were affected by the cyclone minimum of 72 people has been died. This has also caused tremendous damage in Bangladesh.^[75]
- Uttarakhand Forest Fire (May 22, 2020) – The state has been burning up with wildfires breaking out in various Uttarakhand regions. More than 50 Hectare Land Gutted and 46 caused wildfires. There are more than half species of birds and wildlife at risk. For the past 4 days, our Uttarakhand was burning, 2020 is getting worst.^[76]
- Jammu and Kashmir Kulgam encounter (May 27, 2020) – An encounter broke out between militants and security forces in Jammu and Kashmir's Kulgam district on Monday. Three terrorists have been killed. Security forces have launched a search operation in Hiranagar, Kathua district along the Jammu-Pathankot highway.^[77]
- Assam gas and oil leak (May 27, 2020) – The 2020 Assam gas and oil leak, also referred as Tinsukia gas leak or Baghjan gas leak, is a petroleum gas and oil leak that happened in Oil India Limited Baghjan Oil field operated by John Energy Pvt. Ltd. in Tinsukia district, Assam, India, on May 27, 2020. There have been reported deaths of several aquatic animals in nearby region.^[78]
- Earthquake in Delhi NCR (May 29, 2020) – Tremors were felt in Haryana, Punjab, and NCR on May 29. The National Centre for Seismology said the quake occurred at around 9:08 pm and the epicenter is at Haryana's Rohtak. Two quakes hit Rohtak (7 km from Samalkha, Haryana) within 60 minutes; tremors felt in Delhi-NCR.^[79]
- Thunderstorm Taj Mahal Complex Damaged (Agra, 2020) – A deadly thunderstorm that rolled across northern parts of the country damaged sections of the Taj Mahal complex, including the main gate and a railing running below its five lofty domes on May 31, 2020.^[80]
- Cyclonic Storm in Maharashtra and Gujarat (June 3, 2020) – A low-pressure area developing over the Arabian sea will intensify into a cyclonic storm in the next 48 hours and will reach parts of Maharashtra and Gujarat coasts on June 3, weather agency India Meteorological Department said on May 31.^[81]
- Pulwama terrorists encounter (June 3, 2020) – Security forces on June 3 killed terror outfit. Security forces killed three Jaish terrorists, two local terrorists during an encounter in Pulwama district of South Kashmir.^[82]
- Gujarat chemical plant explosion (June 3, 2020) – The Gujarat chemical plant explosion was an industrial accident that occurred at the Yashashvi Rasayan Pvt. Ltd. chemical factory at Dahej in Gujarat, India, around 12:00 h.^[1,2] Five people were killed and 57 were injured in the explosion.^[83,84]
- Rajkot earthquake (June 14, 2020) – An earthquake of magnitude 5.5 struck near Rajkot in Gujarat on Sunday evening at 8:13 pm, according to the National Center for Seismology (NCS). The epicenter of the quake was 118 km north-northwest of Rajkot.^[85]
- Jawans killed in Chinese troops violent face-off (June 16, 2020) – An Indian Army Colonel and two other soldiers were killed in a violent clash with Chinese troops.^[78]
- Bihar lightning thunderstorms (June 25, 2020) – 83 killed in Bihar due to lightning and thunderstorms in single day. At least 83 people died due to thunderstorms in Bihar in the past 24 hours, according to Chief Minister's Office. Bihar Chief Minister Nitish Kumar announced Rs. 4 lakhs each for the families of deceased.^[86]

PRECAUTION THAT SHOULD BE TAKEN DURING TREATMENT OF COVID PATIENT

Dentists should be aware of the following recommendations in certain emergency cases, such as dentoalveolar trauma, fascial space infection, and so on:

- The use of disposable dental equipment for cross-contamination prevention is compulsory.

- Radiographs: Intraoral radiographs should be avoided, as gag reflex or cough may occur. Extraoral radiographs should be done. To avoid cross-contamination, double barriers are made on sensors when intraoral imaging is mandated.^[79]
- Rubber dam should of course be used for non-surgical endodontic treatment to reduce splatter production.^[87]
- Dental procedures that produce higher aerosol content, for example, should be avoided for ultrasonic devices, high-speed handpieces. and three-way syringes.
- Suspected or confirmed cases of COVID-19 should only be treated in negative pressure rooms or isolation rooms for airborne infection isolation rooms and not in daily dental practice.
- Coronavirus survival time is up to 9 days at room temperature on inanimate surfaces or objects, with greater preference for humid conditions. Hence, to avoid SARS-CoV-2 spread, dry conditions should be maintained. Chemicals recently approved for COVID-19 should be used to disinfect.^[88]

CONCLUSION

In any large-scale disaster, there will always be too few medical professional and allied personnel to care for the large number of injured requiring prompt medical care. Any mass fatality response plan of India must incorporate international systems for mass victim identification. If planned properly, the problem of dead body identification would be solved in a much better way and will help the community in the most befitting manner.

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How to cite this article: Singh AV, Tangade P, Saleem A, Josh J, Pandit S, Kumar S. Disasters Surpassed Every Previous Years in Cruelty- A Narrative Review. *Int J Sci Stud* 2020;8(8):7-13.

Source of Support: Nil, **Conflicts of Interest:** None declared.