

COVID-19 Pandemic of 2020 vs. Chernobyl Nuclear Disaster of 1986 - Which Event Has Been More Detrimental to our World?

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Exactly 34 years ago, a nuclear disaster took place in the Soviet city of Pripyat, where a uranium-powered energy plant exploded when a faulty reactor within generated too much energy. This explosion spewed ionizing radiation across Europe, but its effects were worst-felt in the Soviet Republic of Ukraine, where crops, soil, livestock, and the atmosphere became heavily contaminated. An evacuation of nearly 70,000 citizens took place in the area, a >1000 km² exclusion zone was set up, and 18 billion Soviet Rubles were poured into the cleanup effort. Sadly, this was too little, too late, as radiological diseases, such as cancer, had already taken hold of the populace, killing thousands in the coming years. Over 30 years since, the Chernobyl Disaster is remembered as one of the greatest man-made catastrophes of our time.

Flash forward to the modern era, and we're dealing with the worst pandemic of our lifetime. What presumably started out in a seafood market in Wuhan, Hubei, China in December 2019 has now become known as the lethal Novel Coronavirus, or SARS-CoV-2. This disease has already claimed over 210,000 lives across the globe and has affected nearly all nations, with over three million cases as of April 29, 2020. This disease is closely related to the Middle Eastern Respiratory (MERS) and Severe Acute Respiratory (SARS) coronaviruses, which arose in Saudi Arabia in 2012 and China in 2003, respectively. Unlike SARS and MERS (both extremely rare in the United States), COVID-19 is killing thousands a day and affecting densely-populated areas

Sources: [Encyclopædia Britannica](#), [World Nuclear Association](#), [United States Nuclear Regulatory Commission](#), [International Atomic Energy Agency](#), [History.com](#), [Google News](#), [BBC News](#), [Coronavirus.gov](#)

the worst. We are under multiple states of emergency and doctors are working tirelessly to curb the effects of SARS-CoV-2, but the death toll and number of confirmed cases are still steadily rising. For now, there seems to be no end in sight.

As a junior public health specialist for NSF, my goal is to determine which tragedy - a pandemic or a nuclear disaster - is more deadly to humans based on these robust case studies. The economic impact of a pandemic is certainly worse than the tens of billions used to clear an irradiated area, with governments across the world spending *trillions* to keep economies and livelihoods afloat. However, the death tolls and aftermaths of nuclear disasters can vary wildly based on region and population. For example, if an atomic bomb (fueled by the same fission of nuclei that operate nuclear power plants) detonates over Tokyo, the effects will be felt globally. Conversely, if the same bomb destroys villages in the Sahara, fewer people will suffer. The adverse effects of radiation are also much worse than a disease similar to SARS-CoV-2. To prevent COVID-19, people can stay home, wash their hands frequently, and practice social distancing, but the same cannot be done with nuclear disasters.

Radiation is a phenomenon that cannot be sensed by touch, hearing, or sight, as it's simply present in the atoms surrounding us. We're all being radiated during every second of our lives without knowing so. Nevertheless, life continues. After a catastrophe of the scale of Chernobyl, thousands of people must be relocated, space elsewhere made available for them, and sufficient resources provided to ensure their survival. Moreover, the people who bear the brunt of the radiation must be hospitalized, and the healthcare professionals treating them will also be

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radiated and may display cancer-like symptoms. Even worse, their posterity would also bear the effects of the radiation, with cancer rates quadrupling in children from Chernobyl (based on EORTC studies). While the mortality rate for SARS-CoV-2 is around 6%, radiation poisoning is far deadlier at around 50%.

In conclusion, the Novel Coronavirus may have a higher number of absolute deaths, but the effects of a nuclear disaster of the same scale and size are far more detrimental to mankind. After Chernobyl, thousands were diagnosed with acute cancers, burns, and deformities, and the impact is expected to carry on for generations. Many of the horrors that radiation victims face are nothing compared to influenza or other coronaviruses, and those effects are everlasting. Sadly, both of these phenomena originated from human negligence, one by mismanagement of a complex industrial system, and another by unsanitary meat consumption. Both result in unnecessary death and catastrophe.