

# From Hiroshima and Nagasaki to Fukushima: Long-term psychological impact of nuclear disasters

July 31 2015

---

On the 70th anniversary of the atomic bombs in Hiroshima and Nagasaki, a three-part Series published in *The Lancet* looks at the enduring radiological and psychological impact of nuclear disasters, including the most recent accident at the Fukushima Daiichi nuclear power plant in Japan in 2011. The Series provides vital information for the public health planning of future disasters to protect the millions of people who live in areas surrounding the 437 nuclear power plants that are in operation worldwide.

Although nuclear power plant accidents are uncommon, during the past 60 years, five severe nuclear accidents rated as level 5 or higher have taken place—Kyshtym (Russia, 1957), Windscale Piles (UK, 1957), Three Mile Island (USA, 1979), Chernobyl (Russia, 1986), and Fukushima (Japan, 2011).

In one of the Series papers [Paper 2], radiological protection experts led by Dr Koichi Tanigawa of Fukushima Medical University, Japan, discuss an often overlooked aspect of [nuclear disasters](#)—the psychological burden of those living in the regions affected by the accident. In 2006, the UN Chernobyl Forum report concluded that the accident's most serious public health issue was the adverse effects on mental health, an effect made worse by poor communication about the health risks associated with reported radiation levels. Rates of depression and post-traumatic stress disorder remain elevated 20 years after the accident.

Similar problems were seen after Fukushima, with the Fukushima Health Management Survey reporting that the proportion of adults with psychological distress (14.6%) was almost five times higher among disaster evacuees compared to the general population (3%). The authors also highlight how repeated evacuation and long-term displacement resulted in severe health-care problems for the most vulnerable, with deaths among elderly people increasing threefold in the first three months following evacuation.

According to Dr Tanigawa, "Although the radiation dose to the public from Fukushima was relatively low, and no discernible physical health effects are expected, psychological and social problems, largely stemming from the differences in risk perceptions, have had a devastating impact on people's lives."

The Fukushima accident resulted in the evacuation of 170000 residents within a 30km radius of the power plant, yet at least one-third of the world's 437 [nuclear power plants](#) have more people living within that radius—21 of these sites have more than 1 million people and six have more than 3 million people (eg, Taiwan's Kuosheng plant has 5.5 million people).

In another Series paper [Paper 3], Professor Akira Ohtsuru of Fukushima Medical University, Japan, and colleagues discuss what can be done to protect the millions of residents who might be exposed to radiation in the aftermath of another nuclear accident, and how to minimize potential harms to their physical and mental health. Examples include responding to parental concerns about cancer risks for children and helping evacuees' adjust to new places.

According to the authors, lessons from Fukushima need to be learned. "One of the key tasks of the health services is to reliably communicate that in most [nuclear accidents](#) very few people are exposed to a life-

threatening dose of radiation. Physicians must play a key role in helping residents' understand the health risks. Evacuation of a large population of vulnerable people in nursing homes and hospitals will also need careful planning and adequate medical support. Additionally, screening for mental illness in residents relocated from their homes and providing mental health care will be essential."

In another Series paper [Paper 1], researchers led by Professor Kenji Kamiya, Vice President of Hiroshima University, Japan, report on the long-term health impact of radiation exposure from the two biggest nuclear disasters in history—the atomic bombings of Hiroshima and Nagasaki and from the Chernobyl nuclear accident in Ukraine in 1986.

Evidence from the Japanese Life Span Study that followed 94000 atomic bomb survivors from 1950, 5 years after the bombings to the current day, reveals a clear increased lifetime risk of cancer in survivors. The risk was found to be proportional to dose for solid cancers, and a higher risk was found in those exposed as children or young adults. After Chernobyl, an increased risk of childhood thyroid cancer among those with internal exposures from consuming radioactivity in food was also seen in affected areas. Hereditary effects in the children of survivors have not yet been detected.

The authors present critical evidence that cancer risk increases significantly after exposure to moderate and high doses of radiation (upwards of 0.1-0.2Gy), but it remains unclear whether risk is increased at lower doses (0.1Gy or less). Given the unknown effects at lower doses, they conclude that, "Ongoing research is vital not only to understand the potential health effects of nuclear disasters, but to develop radiation protection limits and standards for occupational and medical exposures."

**More information:** The international nuclear and radiological event

scale classifies level 5 as "an accident with wider consequences"

[www.iaea.org/sites/default/files/ines.pdf](http://www.iaea.org/sites/default/files/ines.pdf)

[www.thelancet.com/series/from-...agasaki-to-fukushima](http://www.thelancet.com/series/from-...agasaki-to-fukushima)

Provided by Lancet

Citation: From Hiroshima and Nagasaki to Fukushima: Long-term psychological impact of nuclear disasters (2015, July 31) retrieved 28 April 2024 from

<https://phys.org/news/2015-07-hiroshima-nagasaki-fukushima-long-term-psychological.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.