Mandatory evacuation of residents during the Fukushima nuclear disaster: an ethical analysis

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ABSTRACT

Background The Japan earthquake and tsunami of 11 March 2011 severely damaged the Fukushima Daiichi nuclear plant. After learning of the radiation leak, the Japanese government issued an evacuation directive for residents within 20 km of the plant a day after the earthquake. Approximately 1 month later, this area was designated a ‘high alert zone’ and effectively sealed-off. The purpose of this report is to examine these measures from an ethical perspective, and consider what lessons can be drawn from this experience.

Methods Analytic discussion.

Results We examine the measures from an ethical perspective and argue that if the government’s aim was to avoid health risks posed by radiation exposure, then ordering compulsory expulsion of all residents cannot be ethically justified. We assert that the government may not have ordered the mandatory evacuation solely based on health risks, but rather to maintain public order.

Conclusion Careful scrutiny of the case revealed that this public health intervention involved an objective completely unrelated to public health, and that disguising these policies using the reasonable and acceptable purpose of public health made it easier to justify undue restriction of individual liberty.

Keywords public health

Introduction: The Fukushima Daiichi nuclear plant disaster and measures taken by the Japanese government

The earthquake and tsunami that occurred in Japan on 11 March 2011 severely damaged the Fukushima Daiichi nuclear plant. The radiation leak amidst the nuclear meltdown crisis led to massive confusion in the surrounding areas. On 12 March, the Japanese government issued an evacuation directive, based on the Disaster Countermeasure Basic Act, to areas within a 20 km radius of the plant. However, as evacuation was voluntary, some re-entered the zone on numerous occasions to search for missing family members and/or to care for livestock.

Approximately 1 month later, on 22 April, the Japanese government designated this area a ‘high alert zone.’ The Japanese media readily reported on the plight of residents

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who were forced to evacuate, and the suffering of livestock and pets that were left behind. At the time, the living conditions at evacuation centers were miserable, even though the absolute lack of food and medical supplies was about to be gradually resolved.\(^1\) Hygiene problems and privacy issues were particularly serious, however, as revealed by details in a report from a certain NGO.\(^2\) The report first states the following regarding privacy: ‘According to the government assessment covering 510 evacuation centres . . . , there is no partition for evacuees in 130 evacuation centres and 194 centres only have partitioned space for public use, such as changing rooms. Securing the privacy of the affected populations in the evacuation centres is still the major concern.’ Furthermore, with regard to public health issues, it states, ‘Maintaining appropriate hygiene conditions in the evacuation centres in the affected areas has been a challenge due to the lack of sufficient daily use of water and breakdown of sewage system.’ This report reveals that such harsh living conditions were weakening the physical strength of the elderly and increasing sickness among them.

Despite such harsh living conditions at evacuation centers, as far as we know, the government has faced little criticism on a series of evacuation orders. However, we believe that this issue requires an in-depth examination from an ethical perspective. While these measures were intended to protect residents from radiation exposure, they may not sufficiently justify the liberty-limiting order that, in this case, forced residents to leave the area. We also discuss conclusions which can be made regarding public health ethics from the present case.

**Public health issues**

Before entering into a detailed discussion, we must first evaluate public health-related ethical questions raised by these measures. A major ethical problem that arises in public health practice is the violation of individual liberty. In general, public health aims to improve overall community health. Interventions target collectives, which may simultaneously lead to violations of privacy, corporal integrity or civil liberties, such as freedom of movement, association and belief. Accordingly, the government must justify its interventions.\(^3,4\) The present case is no exception. The government’s order to evacuate residents within a 20 km radius of the plant certainly intended to protect the area residents from radiation exposure. However, the evacuation directive and expulsion order in this case also constituted a violation of individual civil liberties and restriction of individual autonomy. We must first determine whether this violation of individual liberty can be justified.

Have there been similar cases in past discussions of public health ethics? In the sense that freedom of movement was constrained, the present case bears similarities to the isolation and quarantine imposed upon people during the spread of an infectious disease. In such cases, however, the isolation and quarantine are limited to infected individuals or potentially infected individuals. Moreover, the primary objective of these measures is to prevent the disease from spreading through the entire community. In contrast, the liberty of an entire community was restricted on a large scale in the present case. The primary objective of this restriction was not to prevent harm to others, but rather to prevent harm in the form of radiation exposure to the individuals themselves. Thus, this case can be considered a variation of the following question: under what circumstances is it ethically justifiable to undertake paternalistic interventions undertaken in order to protect various individuals’ interests?\(^5\)

**Was the mandatory evacuation of all residents ethically justifiable?**

Let us now examine the issues surrounding the present case. Would the mandatory evacuation of all residents be ethically justifiable if the purpose was to avoid health problems caused by radiation exposure?

From the perspective of a staunch antagonist of paternalism, this expulsion order, regardless of its intention, would be a violation of individual liberty and would likely be considered unjustly paternalistic. However, that is not the only position. While the government must provide justification when conducting a paternalistic intervention aimed at individuals, not all paternalism is necessarily bad. For instance, most of us accept policies regulating or prohibiting tobacco and illicit drug use, although these issues remain controversial in the field of public health ethics.\(^6,7\) Without going into the details of this discussion, we maintain the position that paternalism in public health should not always be prevented.

The first point to consider is the medical evidence for health problems caused by radiation exposure. The increased risk of thyroid cancer, particularly among children, was demonstrated by Chernobyl. Increased risk of cancer in adults due to late-onset radiation damage, however, is predicted to emerge decades after exposure. Given that the average life expectancy in Japan is 79 for men and 86 for women, the risk of cancer due to radiation may not be a concern for those who are currently in their 70s.

Furthermore, although the risk of radiation alone has been frequently cited in this case, movement and evacuation also pose serious risks to the elderly. For example, there
have been reports of evacuee deaths due to harsh living conditions at evacuation centers. The physical and mental risks of living in an unfamiliar and foul environment are quite significant. The evacuation centers posed more urgent, direct and serious physical and mental risks to the elderly than the slightly increased risk of future cancer due to radiation exposure.

In light of the above discussion, we would argue that for children and young adults, the compulsory expulsion was likely in their best interest, which may have outweighed the violation of individual liberty. On the other hand, for the elderly who were fully aware of the radiation exposure threat and potential health risks, and still wanted to remain in the area, an expulsion order solely directed toward preventing health problems was an example of paternalism taken too far and an undue restriction of liberty.

Thus, our proposal allows for differences in treatment between the elderly and all other residents. Unfortunately, this type of age-based policy can tear apart elderly family members who remain in the evacuation zone from other family members (i.e. young adults and children) who are forced to leave the region. For this reason, some may question whether our proposal is practically feasible. However, in the context of some regional characteristics of demographics and family composition, we would deem this age-based policy of mandatory evacuation an appropriate measure. A large portion of the residents in this region are elderly adults, and many of the households comprise a single person or a husband and wife. In fact, some residents remained in the region, refusing to follow the expulsion order. According to Japanese media reports, many of these residents comprised elderly households. Given the regional demographics, the concern for divided families becomes less of an issue.

A different objective

If the sole objective of the governmental measures was to prevent health problems among residents, these measures represent an undue restriction of liberty for at least some residents. Yet, the purpose of the government’s measures in this case is unclear. When closely scrutinized, the evacuation directive of 12 March most certainly aimed to prevent health problems among residents. It appears, however, that the expulsion order of 22 April was not necessarily executed for this purpose. According to the Chief Cabinet Secretary, burglars had entered unoccupied homes in the evacuation zone, and thus in the interest of public order and safety issues, Fukushima prefecture requested that the government restrict entry into the zone. Thus, law and order concerns outweighed health concerns in this expulsion. Since there was no marked change at the nuclear power plant around this time, the reason behind designating the area ‘a high alert zone’ cannot be attributed to a serious worsening of the radiation leak. This raises the question of whether public order can serve as a sufficient basis for forcefully prohibiting entry into an area.

In this case, we would argue that public order cannot truly serve as a sufficient basis for this action. If maintaining public order sufficiently justified compulsory evacuation, then all residents of high crime rate areas should certainly be evacuated compulsorily. It is fair to say that compulsory expulsion may efficiently maintain law and order. However, efficiency is not the primary criterion for choosing a particular measure. Specifically in this Fukushima case, alternative methods could have been employed to address public order concerns. For instance, the government could have maintained a police presence in the region. If health risk to police personnel was a concern, a system of short duration shifts in the region could have been implemented. Furthermore, such compulsory expulsions that aim for maintaining public order could raise issues of unfairness. The entry restrictions forced livestock owners to slaughter valuable animals. This represents one of the many ways in which the compulsory expulsion placed unnecessary extra burden on people.

In the present case, the evacuation was too easily upgraded from voluntary to compulsory without attempting alternatives, such as that mentioned above. Was it ultimately appropriate to forcefully prohibit all residents from entering or remaining in the area when burglaries could have been resolved by maintaining a police presence? We are skeptical about this point. When restricting individual freedom, the bar for intervention must be raised higher by clearly delineating the objectives and ensuring rationality of the methods used to achieve those objectives.

What kind of lessons, then, does this case offer? The main point of our analysis is that the government’s motivation for issuing the compulsory evacuation directive may have been related to the maintenance of public order. We view this as a major public health ethics issue that must not be overlooked. Public health interventions are often assumed to be implemented based on reasonable and acceptable objectives, such as maintenance of health or the prevention of health issues. A careful examination of this case from an ethics perspective, however, revealed that an objective unrelated to public health can certainly entangle itself in public health interventions, and that ‘disguising’ these policies with the reasonable purpose of public health can make it easier to justify the undue restriction of individual liberty.
Although public health interventions are generally thought to be carried out with the noble intentions of health maintenance and disease prevention, this case suggests that other objectives may also enter into the picture. At least in some instances, there could certainly be a legitimate health connection to the objective of public order. Unfortunately, the Fukushima case is not one such instance, as we explained above. In the future, government policies and measures, particularly those associated with binding force, must first be carefully considered in terms of their objectives and the means necessary to achieve those objectives.

**Limitations of this study**

We do not hold an official opinion on the purpose of the government’s compulsory expulsion order. Therefore, with regard to the arguments presented herein, we cannot deny that speculations based on the press conference held by the Chief Cabinet Secretary and some news reports have been included. However, the present article encompasses all of the information that would likely have been obtained at a time of confusion during the earthquake disaster.

**Conclusions**

We have so far argued that compulsory expulsion cannot be justified adequately in this Fukushima case. First, if the purpose of the directive was a paternalistic one seeking to avoid health risks only, some civil liberties of at least the elderly people were unduly restricted. Second, if the purpose of the directive was to maintain public order, measures other than compulsory expulsion could have produced the same outcome.

As illustrated above, in public health interventions, objectives other than health maintenance and prevention may enter the picture, and the issue of public health can make it easier to justify the undue restriction of individual liberty. This is a significant lesson we must learn from this case.

The issue of compulsory evacuation due to radiation leak during a nuclear power plant accident has rarely been addressed in the bioethics and public health ethics literature. The foregoing discussions apply to nuclear disaster events in any country. Thus, the Fukushima case, although undoubtedly unfortunate for the residents who have been forced to evacuate by compulsory expulsion, could provide important lessons for public health policymaking in future disasters as well as valuable food for thought for discussions of public health ethics.

**References**


